

## **EXHIBIT A**

US00D689579S

(12) **United States Design Patent**  
**Barker**(10) **Patent No.:** **US D689,579 S**(45) **Date of Patent:** **\*\* Sep. 10, 2013**(54) **STORAGE UNIT**(76) Inventor: **George V. Barker**, San Diego, CA (US)(\*\*) Term: **14 Years**(21) Appl. No.: **29/423,037**(22) Filed: **May 25, 2012**(51) **LOC (9) Cl.** ..... **21-04**(52) **U.S. Cl.**  
USPC ..... **D21/834**(58) **Field of Classification Search**USPC ..... D21/834, 836-839; D25/33, 64,  
D25/66, 67, 71, 56, 57; 135/87, 88.05, 88.06,  
135/88.13, 90, 93, 94, 96-99, 115, 116, 117,  
135/121, 124-128, 132, 133, 135, 138, 143,  
135/157, 900, 908; 296/159-161; D12/401,  
D12/402, 403, 404; 52/79.1

See application file for complete search history.

(56) **References Cited****U.S. PATENT DOCUMENTS**

3,027,189	A *	3/1962	Scott	.....	135/116
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D338,052	S *	8/1993	MacMorris, Jr.	.....	D21/838
D468,793	S *	1/2003	Ragatz	.....	D21/836
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7,775,230	B2 *	8/2010	Lau	.....	135/126

\* cited by examiner

*Primary Examiner* — Cynthia M Chin(74) *Attorney, Agent, or Firm* — S McPherson IP Law(57) **CLAIM**

The ornamental design for a storage unit, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective view of a storage unit showing our new design;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a rear elevational view thereof;

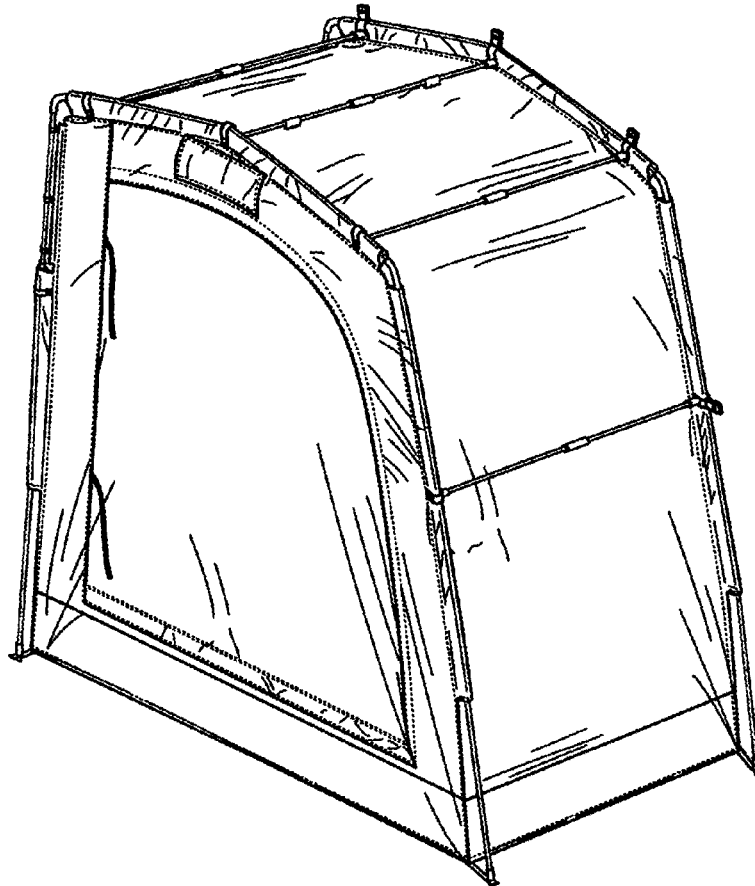
FIG. 4 is a right side elevational view thereof;

FIG. 5 is a left side elevational view thereof;

FIG. 6 is a top plan view thereof; and,

FIG. 7 is a bottom plan view, thereof.

The broken lines shown in the drawings are understood to represent stitching, which form a part of the claimed design.

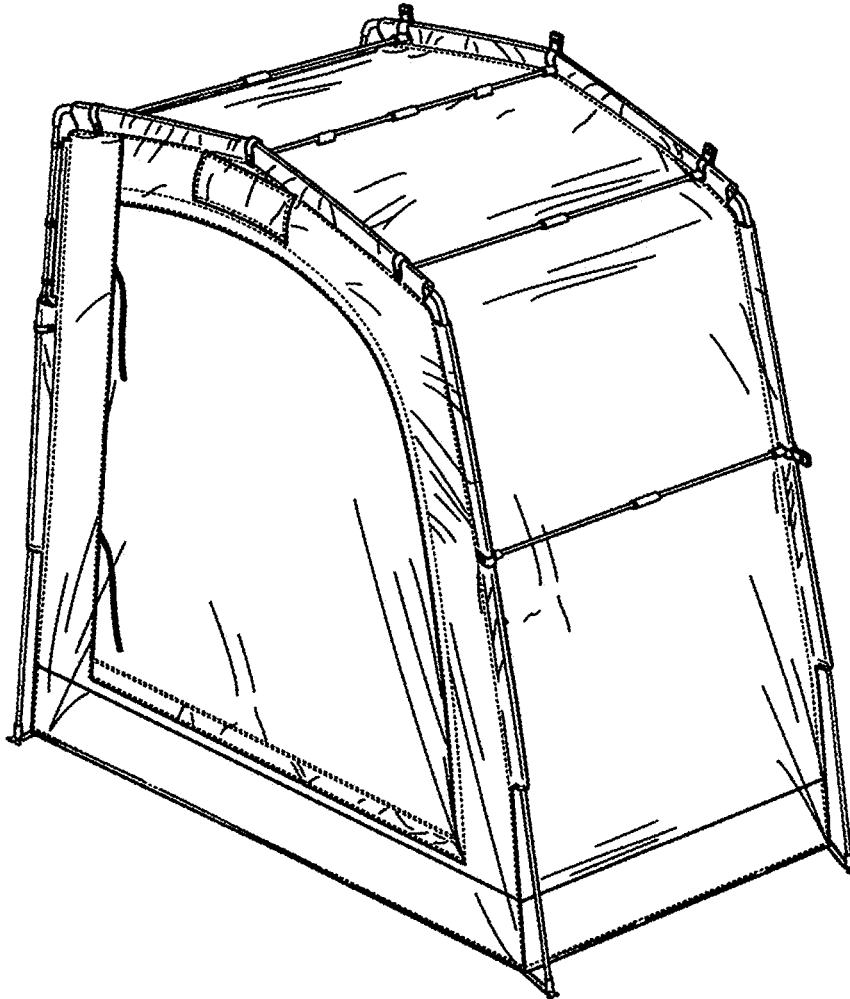
**1 Claim, 7 Drawing Sheets**

**U.S. Patent**

Sep. 10, 2013

Sheet 1 of 7

**US D689,579 S**



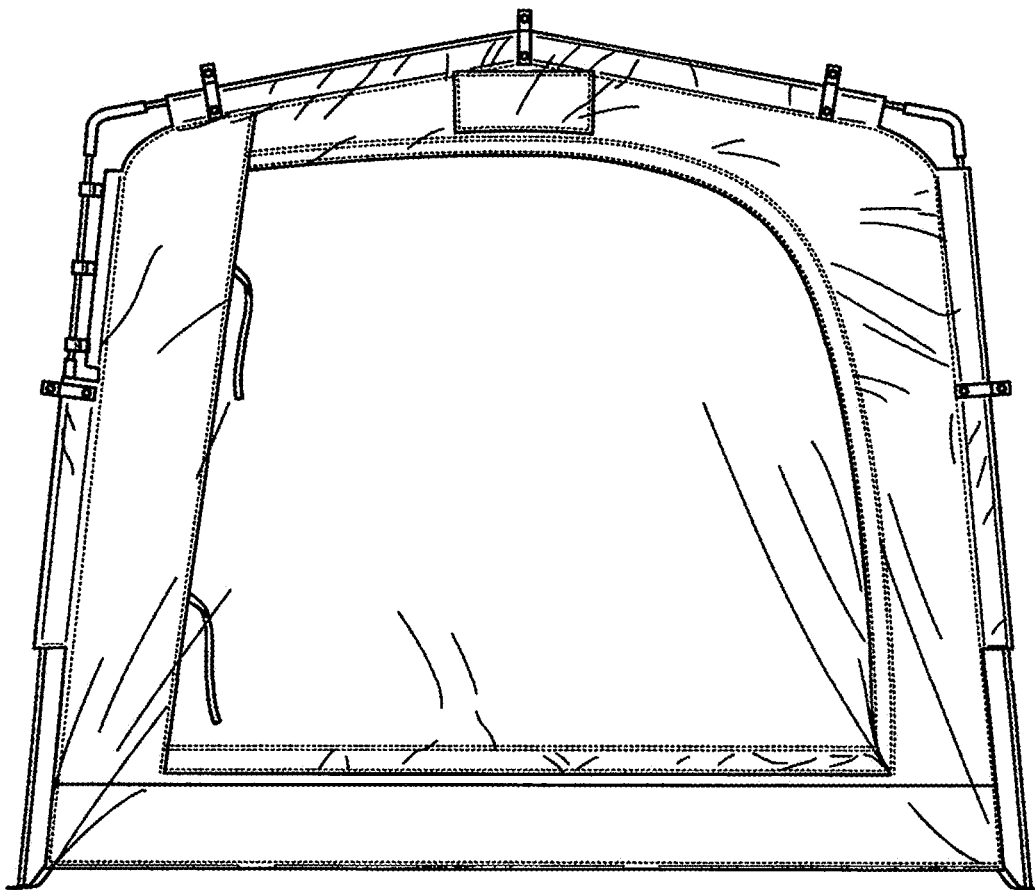
**FIG. 1**

**U.S. Patent**

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**FIG. 2**

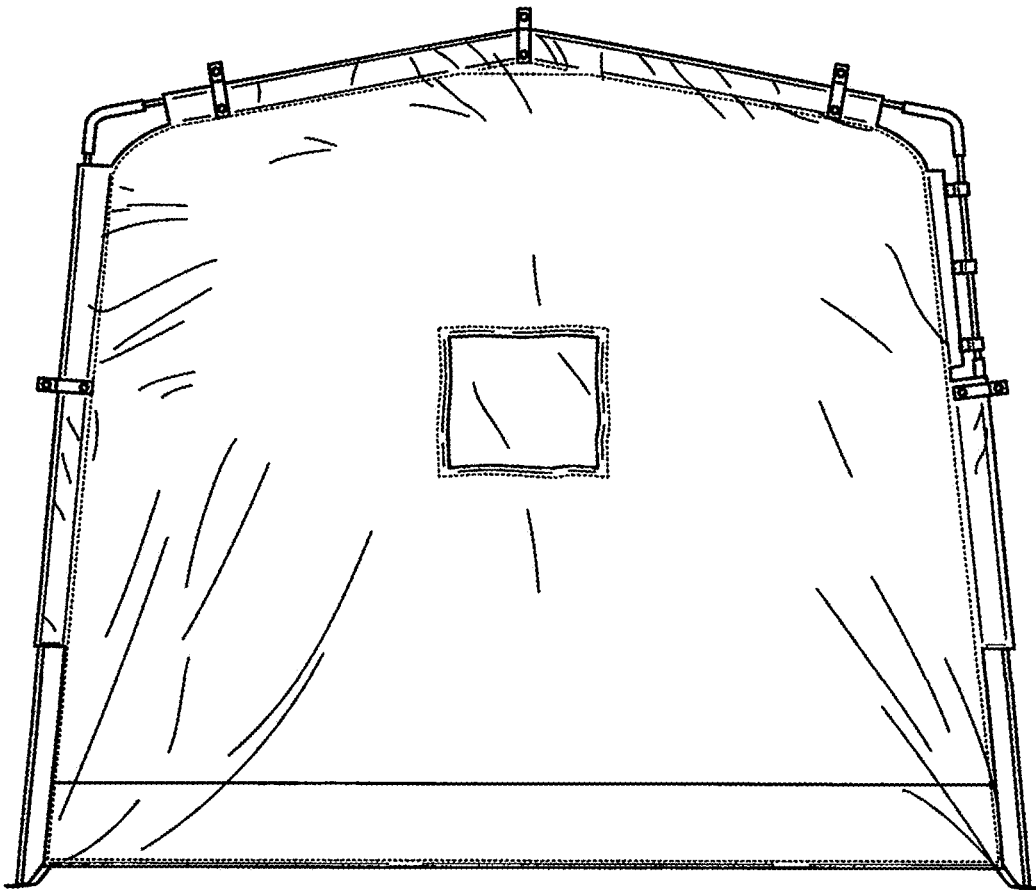


**U.S. Patent**

Sep. 10, 2013

Sheet 3 of 7

**US D689,579 S**



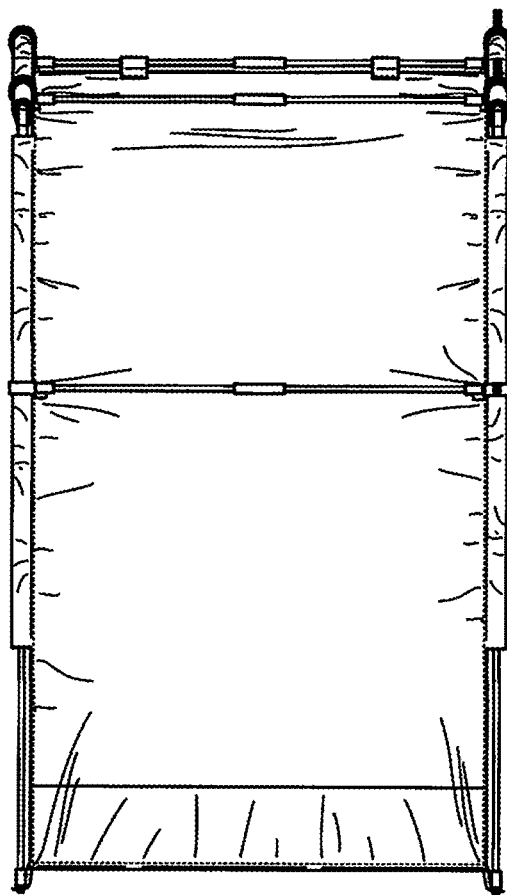
**FIG. 3**

**U.S. Patent**

Sep. 10, 2013

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**US D689,579 S**



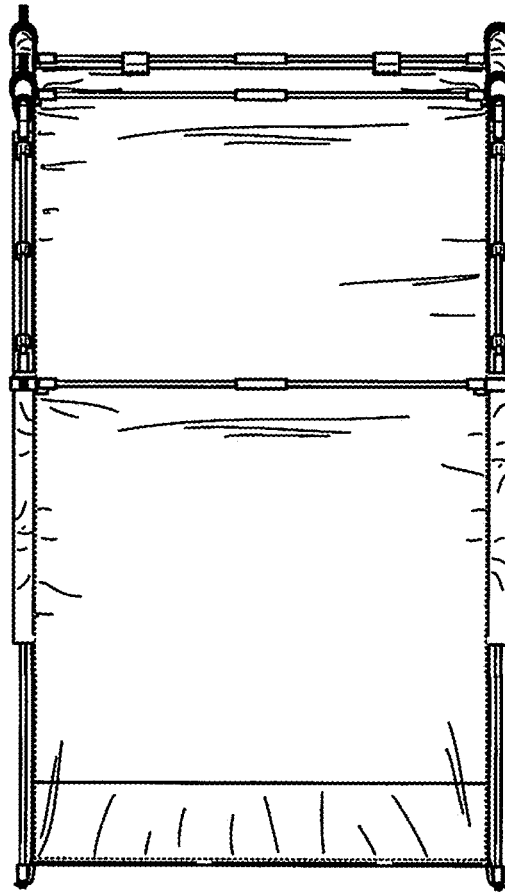
**FIG. 4**

**U.S. Patent**

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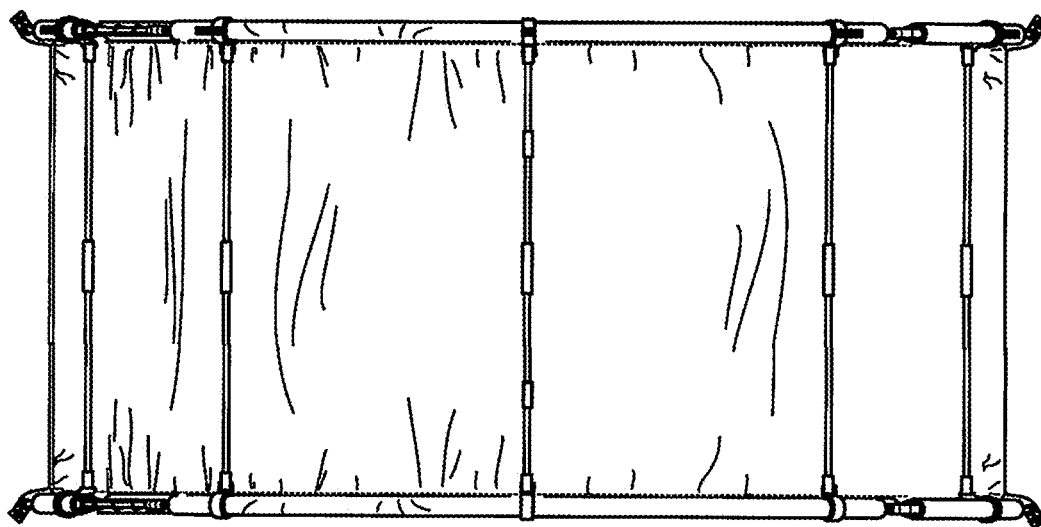
**FIG. 5**

**U.S. Patent**

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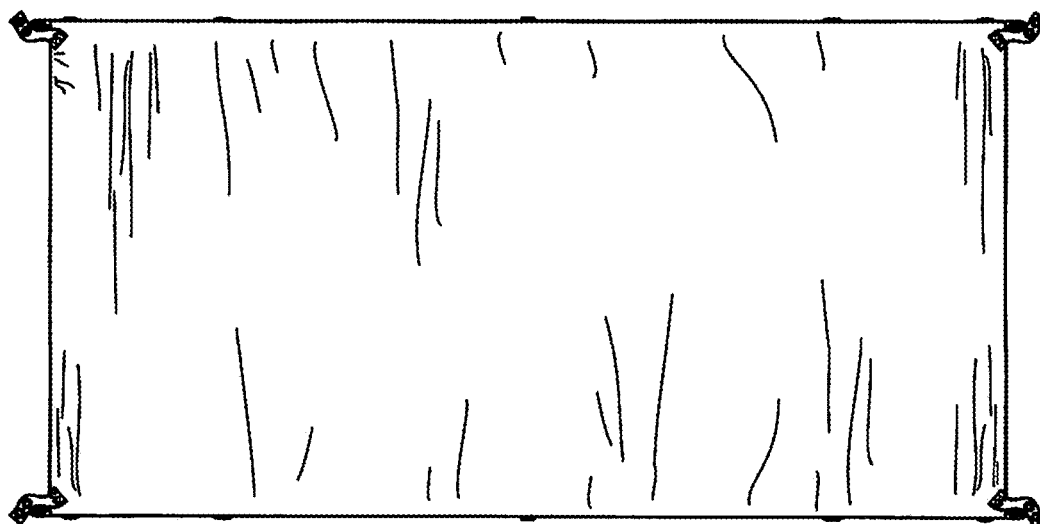
**FIG. 6**

**U.S. Patent**

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**US D689,579 S**



**FIG. 7**

## **EXHIBIT B**

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4117821

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
GEORGE V BARKER	10/25/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	YARDSTASH SOLUTIONS LLC
<b>Street Address:</b>	12229 RAGWEED ST.
<b>City:</b>	SAN DIEGO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	92129
<b>PROPERTY NUMBERS Total: 3</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	29551032
<b>Patent Number:</b>	D661513
<b>Patent Number:</b>	D689579
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	734-548-9005
<b>Email:</b>	efiling@mipatents.com
<b>Correspondent Name:</b>	MATTHEW W. MITCHELL
<b>Address Line 1:</b>	944 N. MAIN ST.
<b>Address Line 4:</b>	ANN ARBOR, MICHIGAN 48104
<b>ATTORNEY DOCKET NUMBER:</b>	1215-001
<b>NAME OF SUBMITTER:</b>	MATTHEW W. MITCHELL
<b>SIGNATURE:</b>	/Matthew W. Mitchell/
<b>DATE SIGNED:</b>	10/27/2016
<b>Total Attachments: 1</b> source=6164#page1.tif	

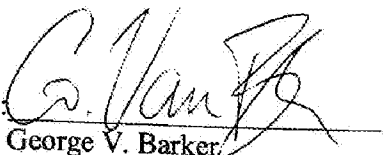
## ASSIGNMENT OF PATENT APPLICATION AND PATENTS

Whereas I, an undersigned inventor, have invented certain new and useful improvements as set forth in the patent application entitled: STORAGE UNIT which bears U.S. application No. 29/551,032, and U.S. patent nos. D661,513 and D689,579.

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, an undersigned inventor, hereby:

- 1) Sell, assign and transfer to, YardStash Solutions LLC, a California limited liability corporation having a place of business at 12229 Ragweed St., San Diego, CA 92129 ("ASSIGNEE"), the entire right, title and interest in any and all improvements and inventions disclosed in, applications based upon, and patents (including foreign patents and the right to claim priority) granted upon, the above-referenced application.
- 2) Authorize and request the Commissioner of Patents to issue any and all Letters Patents resulting from said application or any division, continuation, substitute, renewal, re-examination or reissue thereof to the ASSIGNEE.
- 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.
- 4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the ASSIGNEE, its successors, assigns and other legal representative, and shall be binding upon the inventor, as well as the inventor's heirs, legal representatives and assigns.
- 5) Warrant and represent that I have not entered, and will not enter into any assignment, contract, or understanding that conflicts with this assignment.

Signed on the date indicated beside my signature.

Signed:   
George V. Barker

Date: 10/25/16

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Diego

Subscribed and sworn to (or affirmed) before me on this 25 day of Oct

2016 by George V. Barker

proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Signature

(Seal)





## **EXHIBIT C**

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4117821

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
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<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	29551032
<b>Patent Number:</b>	D661513
<b>Patent Number:</b>	D689579
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	734-548-9005
<b>Email:</b>	efiling@mipatents.com
<b>Correspondent Name:</b>	MATTHEW W. MITCHELL
<b>Address Line 1:</b>	944 N. MAIN ST.
<b>Address Line 4:</b>	ANN ARBOR, MICHIGAN 48104
<b>ATTORNEY DOCKET NUMBER:</b>	1215-001
<b>NAME OF SUBMITTER:</b>	MATTHEW W. MITCHELL
<b>SIGNATURE:</b>	/Matthew W. Mitchell/
<b>DATE SIGNED:</b>	10/27/2016
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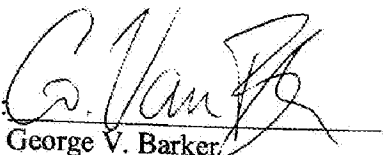
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- 2) Authorize and request the Commissioner of Patents to issue any and all Letters Patents resulting from said application or any division, continuation, substitute, renewal, re-examination or reissue thereof to the ASSIGNEE.
- 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.
- 4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the ASSIGNEE, its successors, assigns and other legal representative, and shall be binding upon the inventor, as well as the inventor's heirs, legal representatives and assigns.
- 5) Warrant and represent that I have not entered, and will not enter into any assignment, contract, or understanding that conflicts with this assignment.

Signed on the date indicated beside my signature.

Signed:   
George V. Barker

Date: 10/25/16

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Diego

Subscribed and sworn to (or affirmed) before me on this 25 day of Oct

2016 by George V. Barker  
proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Signature

(Seal)



## **EXHIBIT D**

0 COMPARE (0)

FREE SHIPPING ON ALL ORDERS

MY ACCOUNT

DAILY DEAL

MY WISHLIST

LOG IN



Deals

All Categories



1-877-528-3269

CONTACT US



HOME

SUMMER BOARDS

HAMMOCKS

ACCESSORIES

ICE CHESTS

Home &gt; Accessories &gt; Driftsun Patio Storage Tent, Bike Tent, Garden Equipment Organizer, Shed

## Driftsun Patio Storage Tent, Bike Tent, Garden Equipment Organizer Shed



**FREE SHIPPING**  
Free shipping on all orders.

**MONEY BACK GUARANTEE**  
30 day return policy.

**CUSTOMER SUPPORT**  
Contact us if you have questions!



- HIGH QUALITY yard storage tent for all your needs.
- SPACE SAVING size (74" wide x 30" deep x 65" high, fits two adult bicycles with room to spare) easily fits two adult bikes, pool floats & supplies, kids toys, lawnmower, long handled garden tools and other outdoor gear.
- FULL TOP & BOTTOM zippers on door to completely seal the door and provide full protection against wind, dust and pests.
- INDUSTRIAL GRADE, ripstop, vinyl tarpaulin roof with UPF 50+ protection and an even stronger solvent-resistant bottom to interior weatherproof coating.
- QUICK & EASY set-up: no tools required, less than 15 minutes! Heavy duty materials (2 1/2" heavier than other storage tents), reinforced integrated floor, large zippers with storm flaps, back panel for locking bikes to a fence or pole, and front mesh vent to eliminate condensation.

### DAILY DEAL

There are no products matching the selection.

Availability: In stock

~~\$149.99~~ **\$99.99**

Email to a Friend  
Sign up for price alert

1

ADD TO CART

OR

PayPal



amazon  
payments

**EXHIBIT E**  
**(for claim 24 a through q)**

**24. a.**

J. H. WITTMANN.

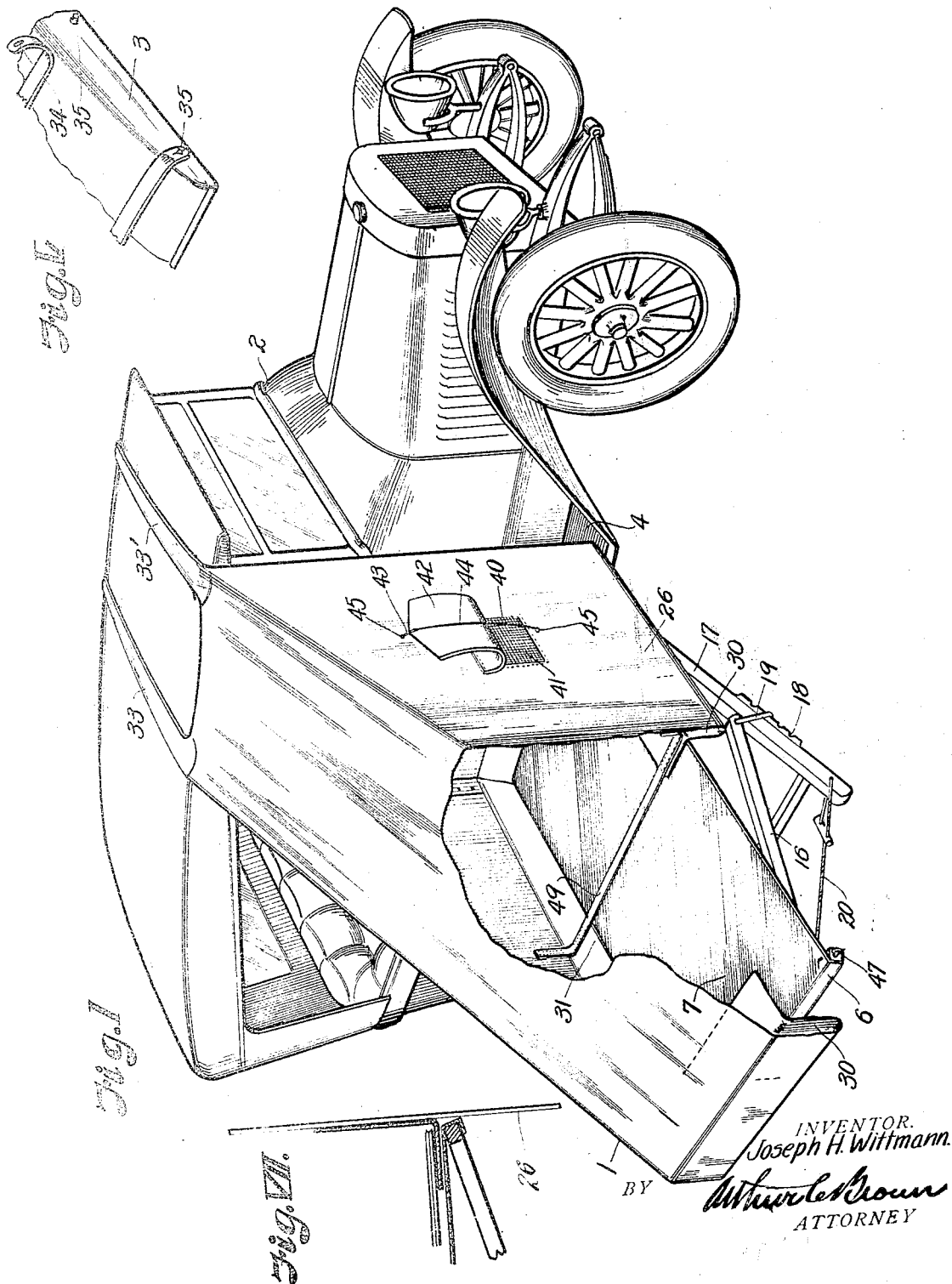
TENT.

APPLICATION FILED MAY 5, 1916

Patented Jan. 7, 1919.

2 SHEETS—SHEET 1.

1,290,824.

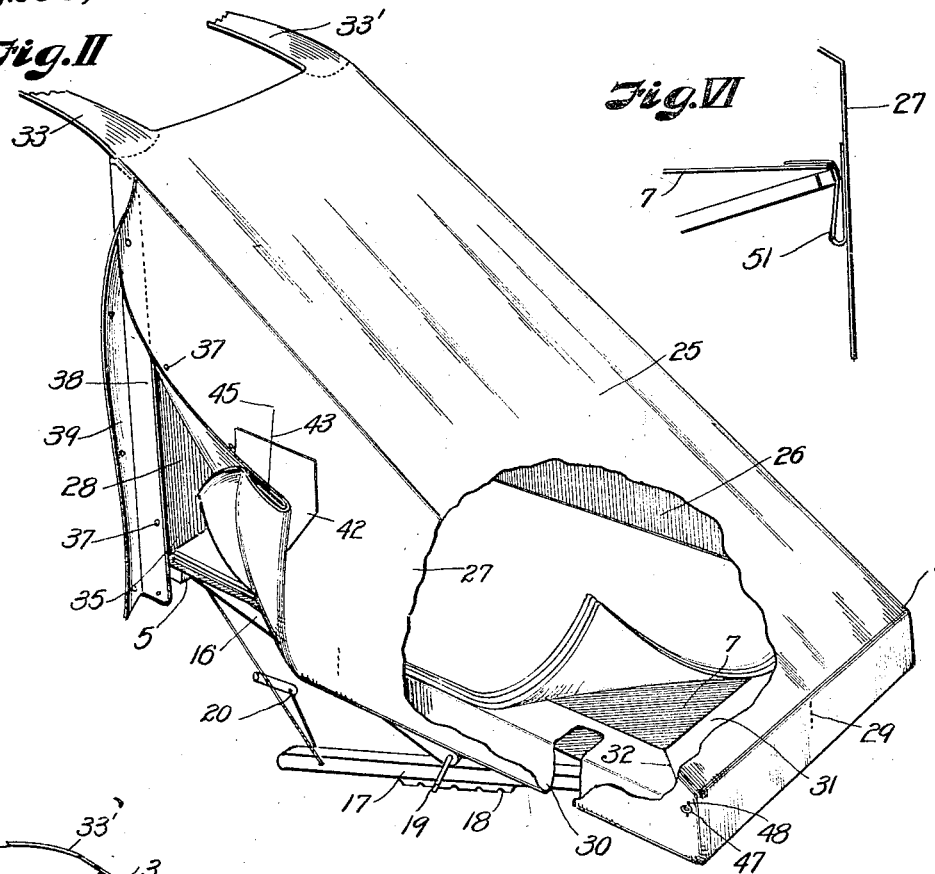


J. H. WITTMANN.  
TENT.  
APPLICATION FILED MAY 5, 1916

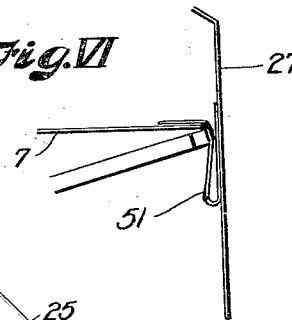
Patented Jan. 7, 1919.  
2 SHEETS—SHEET 2.

1,290,824.

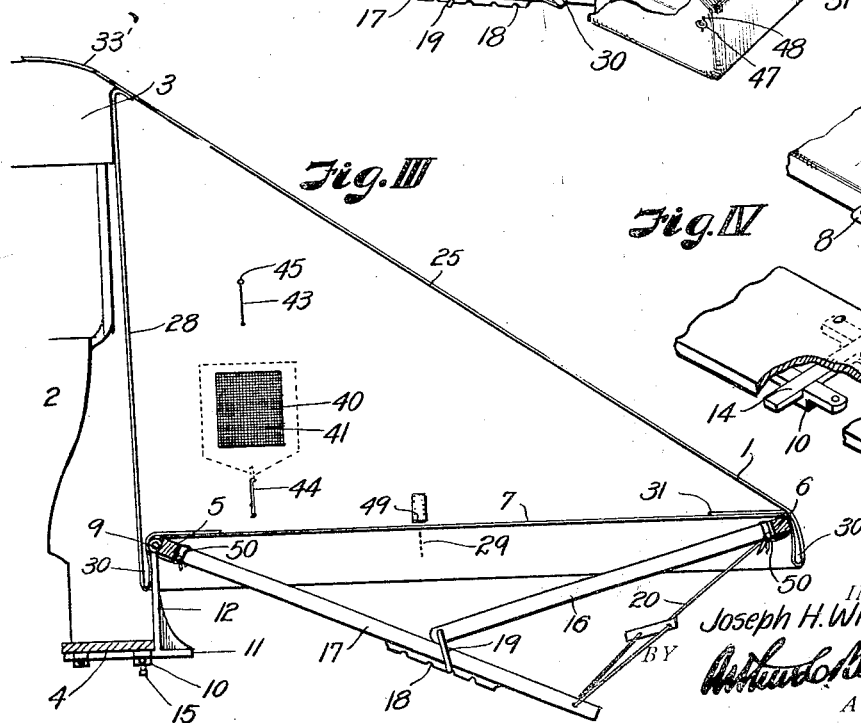
*Fig. II*



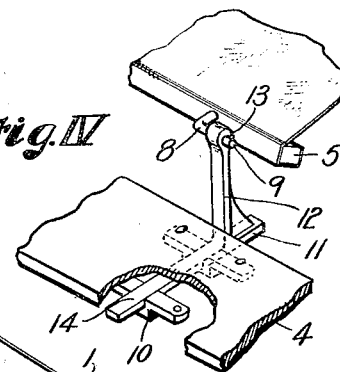
*Fig. VI*



*Fig. III*



*Fig. IV*



INVENTOR.  
Joseph H. Wittmann.  
BY *Arthur D. Brown*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

JOSEPH H. WITTMANN, OF KANSAS CITY, MISSOURI.

TENT.

1,290,824.

specification of Letters Patent.

Patented Jan. 7, 1919.

Application filed May 5, 1916. Serial No. 95,584.

*To all whom it may concern:*

Be it known that I, JOSEPH H. WITTMANN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Tents; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to tents, and has for its principal object to provide a tent which is especially adapted for automobile touring, or other out-door uses, in that it may be easily and quickly erected to form a water and insect-proof sleeping compartment, and may be folded to form a compact bundle which may be easily handled and will occupy a minimum amount of space in transportation.

In accomplishing this object I have provided the details of structure hereinafter described and illustrated in the accompanying drawings, wherein:—

Figure I is a perspective view of a tent constructed according to my invention, illustrating the manner of suspending the tent from an automobile, and showing it in connection with a bed.

Fig. II is a perspective view of the tent, particularly illustrating the opening, a part of the tent being broken away to show the pockets.

Fig. III is a longitudinal vertical section of the same.

Fig. IV is a detail perspective view of a bracket for supporting the inner end of the bed on the foot-board of an automobile.

Fig. V is a detail perspective view, showing the manner of fastening the tent supporting straps to an automobile top.

Fig. VI is a sectional view of a modified form of flap and pocket, as used with a full length tent wall.

Fig. VII is a detail view of part of a tent wall showing a modified arrangement of the flap.

Referring more in detail to the drawings:

1 designates a tent embodying my invention, and which is adapted for support on, or suspension from, the side of an automobile 2, of any ordinary construction comprising

ing a top 3 and foot-board 4, although the use of the tent is not limited to such combination, nor to the combination with a bed of the structure hereinafter described, the specific description of bed structure and the combination of the tent with an automobile and bed being given merely to better describe the structure and use of the tent.

5—6 designate respectively the inner and outer end bars of a bed and 7 a canvas, or the like, which connects the said bars and forms the carrying body of the bed; the bed shown and described herein being of the type more fully disclosed in my copending application, filed March 27, 1916, and serially numbered 86,974.

Projecting from the inner cross bar 5 of the bed are hooks 8, having out-turned end portions 9, and supported by socket members 10 on the under face of the foot-board 4 are brackets 11, comprising standards 12 provided at their upper ends with eyes 13, for receiving the end members 9 of the bolts 8 and having base portions 14 which are slidably secured within the sockets 10 by set screws 15.

Fixed to the outer bed bar 6 are spreader arms 16, which are of little more than half the length of the bed, and fixed to the inner end bar are supporting arms 17 that are adapted for engagement by the free ends of the spreader arms to form a leverage support for the outer end of the bed.

Each of the supporting arms is provided with a plurality of sockets 18 on its under face which is adapted for receiving a latch 19 on a relative spreader arm to provide adjustment for the bed, and with a tightening rope 20 that secures the end of each of the supporting arms to the end cross bar to tighten the spreader arms against the supporting arms to make the connection secure.

The preferred form of tent comprises the sloping top member 25, having integral side and end walls 26—27 and an inner end wall 28; the side and end walls being secured at their adjacent edges and draped about the carrying body of the bed to inclose the same. The lower edges of said side and end walls are turned up and sewed to the body (as at 29) at intervals along the walls and at the corners of the tent to form permanent pockets 30, the upturned portions extending beyond the stitching 29 to form flaps 31 that may lie on the bed beneath the bed clothing to anchor the tent to the bed and vice versa.

1,290,324

The upturned portions need not be stitched to the body of the wall throughout the entire depth of the pockets, as by limiting the stitching to the upper portions of the pockets a single continuous pocket may be formed entirely about the bed. The loose ends of the upturned edge portions of the tent walls and the flaps 31 are cut on a bevel at the corners and sewed together, as at 32, so that the tent body is made to snugly fit the bed.

Secured to the upper corners of the top 25 are supporting strips 33—33' which are adapted for overlying the automobile top 2, and are provided at their free ends with button-holes 34 for receiving buttons 35 on the automobile top and at the side of the vehicle opposite that on which the tent is placed and by which means the tent is held erected.

At either side or at the end of the tent I provide an opening by separating the side and end members, and provide the same with buttons 37 by which the flaps 38 may be held closed. A supplemental flap 39 is also sewed to the end member 28 and may be buttoned over the side flap after the same has been fastened to close the opening, so that rain cannot be blown into the tent.

I also provide ventilating openings 40 in each of the side walls and close the same with a screen 41 to prevent mosquitos, or bugs, from entering, and I provide flaps 42 for the openings which may be raised or lowered from the inside of the tent by means of drawstrings 43—44 which are secured to the free ends of the flaps and pass through apertures 45 in the side walls, so that one may manipulate the strings from the inside of the tent to raise or lower the flaps.

To hold the tent securely over the bed, I provide buttons 47 at the ends of the end bars 5—6, which may be projected through button holes 48 at the corners of the tent, and provide a cross strip 49 which is secured to the opposite side members and overlies the bed, so that when the bedding is laid thereon the side walls are held in position. If so desired, tapes 50 may be attached to the tent sides and ends and tied to the bed bars to hold the walls of the tent down and anchor the tent to the bed.

With some forms of supports, as when the bed and tent are carried by the trailer of an automobile, it is desirable for the tent walls to extend to the ground instead of folding up at their lower edges to form the pockets. In such cases the walls may hang along the sides of the bed to the ground and separate pieces 51 attached to the inner faces of the walls by sewing or otherwise, and turned up to form the pocket and flap.

The strips 33—33' are then thrown over the top of the automobile and secured to

the buttons 35 so that the tent is drawn tight above the bed. Bedding is then placed on the supporting body to overlie the cross strips 49 and pocket flaps 31 so that an inclosed compartment is formed that is impervious to inclement weather or insects.

It will be seen that when a person retires within the tent, the clothing when removed, may be placed within the side or end pockets, where it is protected from the weather and insects and will serve to hold the tent down about the bed.

In the modified form, I have shown a tent flap extended to the ground and having a separate pocket portion sewed to the side wall; this construction being used on large tents where the side walls are extended to the ground.

It is apparent that by so constructing the tent and bed a very convenient and serviceable combination is provided that may be easily and quickly erected and when not in use may be folded together to form a compact bundle that is easily transported and requires a minimum amount of space.

While I have shown a particular kind of bed, it is apparent that any type of cot or bed could be used, and it is also apparent that the tent could be supported in any suitable manner without departing from the spirit of the invention.

It is also apparent that with a tent of this construction it is unnecessary to provide guy ropes, as the tent walls are anchored by the bed.

While the pocket that is formed by the anchoring flap is a great convenience for holding clothing, or the like, the flap may overlie the bed without forming the pocket, and when so arranged will be fully as effective for excluding insects from the interior of the tent.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters-Patent, is:

1. In combination with a bed, a tent inclosing the bed, having a side wall extending below the bed bottom and comprising a member having a free edge turned inwardly along the bed bottom above the bottom of the side wall.

2. The combination with a bed, of a tent comprising a wall and a pocket member connected with the wall and having a flap at its free edge supported on said bed.

3. The combination with a bed, of a tent having walls draped about and extending below the bed, the edges of said wall being turned up to overlie the edges of the bed, for the purposes set forth.

4. The combination with a bed, of a tent having side and end walls draped about and extending below the bed and turned up to overlie the edges thereof to form pocket-

1,280,824

8

ets thereabout between the said outer and upturned portions, and a strip fastened to opposite points on the side walls adapted to closely overlie the bed.

5 5. The combination with a bed, of a tent having side and end walls draped about the bed and extending below and turned up to overlie the edges thereof to form pockets thereabout between the said outer and  
10 upturned portions, and strips secured to the top of the tent for supporting the same above the bed.

6. The combination with a bed, of a tent comprising side and end walls and a slop-

ing top portion, there being an opening 15 between a side and end wall, and there being ventilating openings in the side walls; the said walls being draped about and extending below the edges of the bed and having their lower ends turned up to over- 20 lie the edges of the bed and form pockets there about, a strip for connecting opposite side walls, and strips secured to the top of the tent to suspend the same above the bed.

In testimony whereof I affix my signature. 25

JOSEPH H. WITTMANN.

2 Sheets-Sheet 1



ATTORNEY S

June 24, 1941.

L. A. PRESTON

2,246,813

VEHICLE BED CONSTRUCTION

Filed April 3, 1939

2 Sheets-Sheet 2

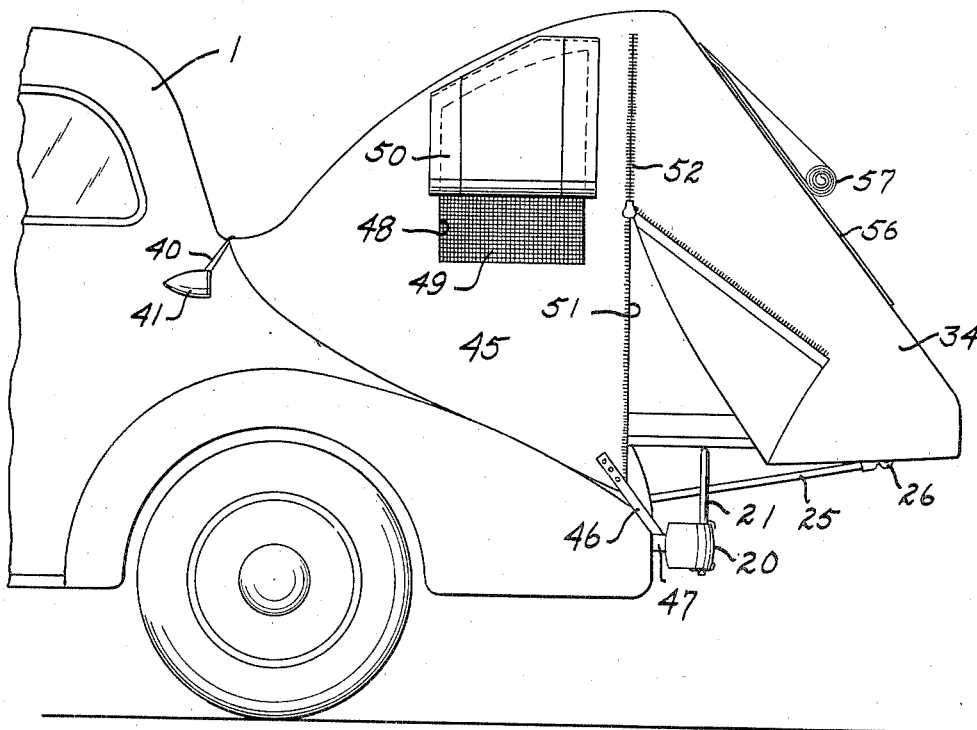


Fig. 3.

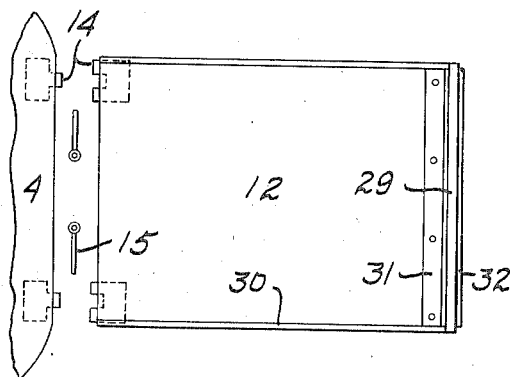


Fig. 4.

INVENTOR  
LAURENCE A. PRESTON

Joseph R. Stone  
&  
Lester B. Clark

ATTORNEYS



Patented June 24, 1941

2,246,813

## UNITED STATES PATENT OFFICE

2,246,813

## VEHICLE BED CONSTRUCTION

Laurence A. Preston, Houston, Tex.

Application April 3, 1939, Serial No. 265,672

## 1 Claim. (Cl. 296—26)

This invention relates to a vehicle bed construction and particularly a construction utilized in combination with the turtle deck of an automotive vehicle body whereby a temporary bed may be readily provided.

The invention contemplates the provision of an extension to the turtle deck or luggage compartment of an automobile body, support means therefor, and a canopy adapted to be secured about the periphery of the extension and extend upwardly over the compartment cover or door, which serves to support the canopy.

It is the general object of the invention to provide a vehicle bed which may be readily assembled and disassembled and which will occupy a minimum of space when stored for travel.

Another object is to provide a vehicle bed construction which utilizes a turtle deck extension to which is attached a canopy supported by the door or cover for the turtle deck compartment.

Another object is to provide a novel construction for supporting the turtle deck extension during assembly with the fixed deck and also when using the construction as a bed.

Still another object is to provide a vehicle bed including a canopy passing over and supported by the open door or cover of the turtle deck or luggage compartment.

These and other objects will be apparent from the following description taken in connection with the drawings in which:

Fig. 1 is a sectional view through the rear end of a coupe body illustrating an embodiment of the invention.

Fig. 2 is a rear view of a vehicle with canopy removed to show the support construction.

Fig. 3 is a side assembly view of the device of the invention.

Fig. 4 is a plan view of the extension deck illustrating the manner of attachment of the extension to the turtle deck of the vehicle.

In Fig. 1 the invention is illustrated in combination with a vehicle body 1 having a luggage compartment 2 rearwardly of the vehicle wall 3. The compartment 2 is provided with a floor or deck 4 above the spare tire compartment 5 having a nether floor 6. The door or cover 7 is hinged to the body at 8 and lifts upwardly to open the compartment 2. This cover is held uppermost or in open position by means of a latching mechanism 9 which is pivotally connected to the body and cover at 10 and 11, respectively.

In order to provide a bedding surface of suffi-

cient length to accommodate a person, a deck extension 12, of a width to enter the opening 13 in the vehicle body is provided. This extension and the deck 4 are provided with complementary connector members 14, best shown in Fig. 4 as hinge members having removable pintles 15.

The rear bumper 20 has inverted V-shaped support and guard members 21, upon which the extension 12 may be substantially balanced while the complementary elements of the connectors 14 are brought into mating relation for insertion of the pintles 15. Thereafter the members 21 continue to serve as support for the extension 12. Additional support for extension 12 is provided in an arm 25 which is pivotally attached to the nether surface of the extension at 26. The opposite end of this arm is releasably attached to a support 27 on the floor of the spare tire compartment 5. If desired this arm may be swung downwardly to the position shown in dotted outline in Fig. 1 so that the outer end of the deck extension will be supported directly from the roadway 28 upon which the vehicle stands.

The deck extension 12 is provided with an upwardly extending end rail 29 and side rails 30, the former of these rails being securely held in place by means of angles 31 and 32.

An enclosure for the bed 33 is provided by canopy 34 which is supported upon the cover 7. The forward end of this canopy has fasteners 40 which may be secured to the vehicle body as by the bracket of lamp 41. The side wall 45 fits closely adjacent the sides of the compartment 2 and are tightly held in place by straps 46 attached to the bumper support 47. The side walls also have an opening 48 in which a suitable netting 49 is fixed, a rolled flap 50 being provided so that the side wall may be completely closed. Rearwardly of the opening or window 48 is a vertical slit 51 which may be closed by means of hookless fastener 52 or other suitable closure means.

The rearward wall 55 of the canopy 34 is also provided with an opening covered with a netting 56 and a roll flap 57 so that such opening may be kept open or closed as desired. The sidewalls surrounding the deck extension 12 are provided with snaps, buttons, or the like, so that these walls may be attached to the deck extension.

In assembling and using the described construction, the cover 7 is lifted to open position and extension 12 is fixed in place. The cover 7 is then lowered and a canopy is placed there-

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over and secured to the vehicle body and the extension 12 as indicated. With fastener 52 open, access is had to the cover 7 which is lifted to its uppermost position to stretch the canopy into position for use. It is to be understood that the bed 33 upon the deck 4 and the extension 12 may be made up either before or after the canopy 34 is in position.

While specific details of the construction have been described, it is understood that the invention is not confined thereto, but broadly comprehends a vehicle bed construction which is readily assembled and disassembled and which will occupy a minimum amount of space when stored for travel.

The invention claimed is:

A vehicle body including upper and lower spaced decks thereon, a deck extension detachably connected to said upper deck at its rear

edge and normally detached from the upper deck and resting thereon, support means on the vehicle rearwardly of the upper deck adapted to support the extension while such extension is being connected to and disconnected from the upper deck, a cover hinged to said body and normally enclosing said decks, said upper deck and extension, when opened, extending in a common plane, means on said lower deck to support the outer end of said extension, a canopy enclosure secured at one end to said body, enclosing said cover and secured at the other end to said extension, means to support said cover in open position, and a hookless fastener in the side wall to permit ingress and egress to and from said enclosure, said upper deck and extension forming a self-contained unit enclosed by said canopy.

LAURENCE A. PRESTON.

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July 21, 1953

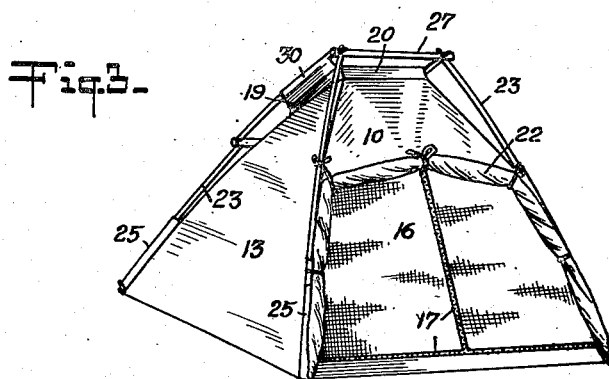
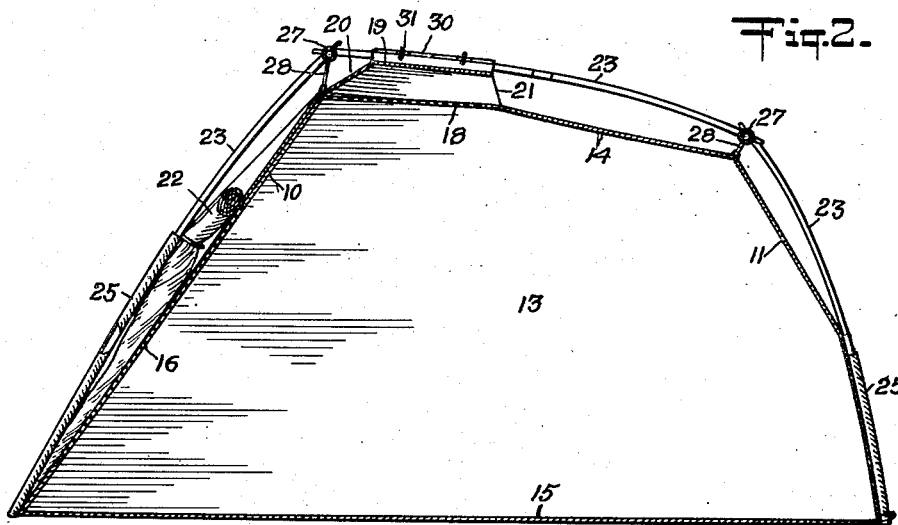
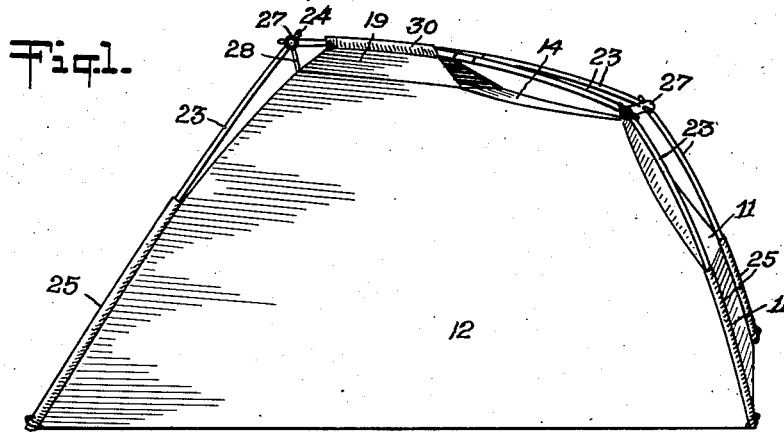
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TENT CONSTRUCTION

Filed Nov. 5, 1949

2 Sheets-Sheet 1



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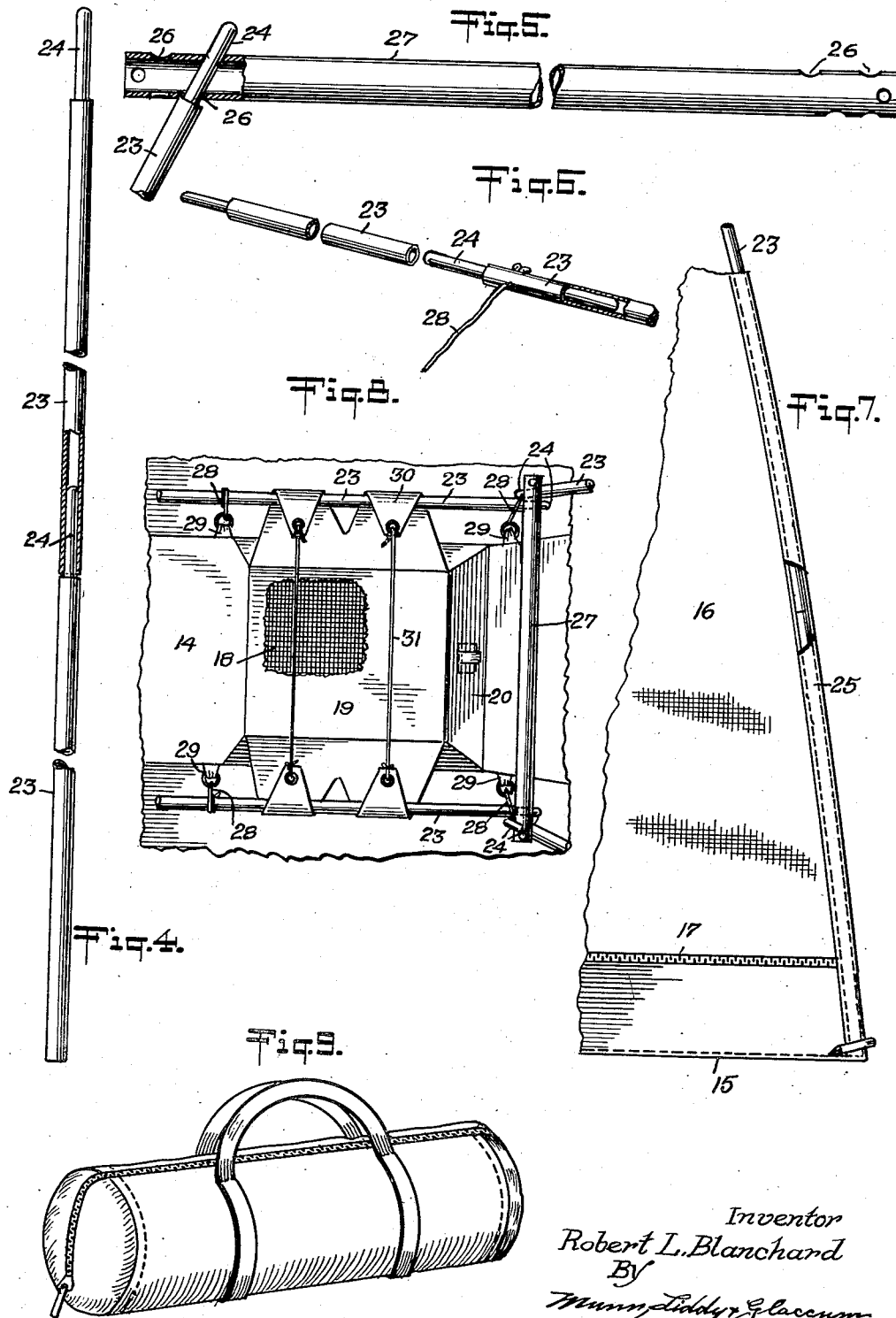
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TENT CONSTRUCTION

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

2,646,057

## TENT CONSTRUCTION

Robert L. Blanchard, New York, N. Y.

Application November 5, 1949, Serial No. 125,715

8 Claims. (Cl. 135—1)

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This invention relates to new and useful improvements in tent structures and is an improvement over the invention shown and described in my co-pending application, Serial No. 9,695, filed February 20, 1948, and entitled "Explorer's Folding Tent," now Patent No. 2,543,684, dated February 27, 1951.

An object of the invention is to provide an improved tent construction in which there is more inside space with utmost economy of material and weight.

A further object is to provide a tent construction in which there are presented no vertical surfaces, but all sides are evenly streamlined to the wind in all four directions from ridge to ground line.

A still further object is to provide a tent construction in which one man may erect the tent in not over five minutes on any terrain whatever, whether it be ice, snow, solid rock, sand, wooden floor, and without the employment of any extraneous gear but only with what is included with the tent and is included in the minimum weight of two pounds per occupant, in the smaller model.

A yet further object is to provide a tent construction in which the tent and the frame are automatically locked together on assembly to become an integral unit and can become disassembled only by intent.

Still another object is to provide an adequate and permanent tent ventilator adjustable from the inside to weather conditions and is installed at the extreme apex of the tent, and is sustained without any external means other than the frame of the tent, being integral with the tent.

Further and more specific objects, features, and advantages will more clearly appear from a consideration of the detailed specification hereinafter set forth especially when taken in connection with the accompanying drawings which illustrate a present preferred form which the invention may assume and which form part of the specification.

In brief and general terms, the tent construction includes a flexible frame member comprised of flexible tubular elements, which may or may not be formed in sections detachably connected. The frame comprises a pair of frame members which extend upward rather sharply from corners of the tent and then are disposed in a direction sloping downwardly and rearwardly to form a flat roof. These frame members extend along the top of the tent body. Transverse brace bars are disposed across between these main frame

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members at the front and rear of their top portions to hold them in spaced relation, and to form means for connecting the sections of the frame when the frame is sectional and also to provide means to which to tie the top of the body of the tent when it is suspended within the frame members.

The invention further includes a ventilator arrangement in the top of the flat upper portion of the tent body and provided with a cover which has straps thereon to be laced to the opposite frame members. The body of the tent is also provided with cords or connector elements at the corners of its top portion in order to be pulled upwardly and outwardly at these corners to hold the sides of the tent body in taut condition. The top, side, and bottom of the tent body portion are of one piece and when raised in operative position, form an entirely inclosed water- and weather-proof structure suspended from within the frame but not containing the frame to any material extent so as to substantially eliminate the possibility of undue wear and leakage there-through.

The present preferred form which the invention may assume is illustrated in the drawings, of which:

Fig. 1 is a side elevation of the tent in operative position;

Fig. 2 is a vertical longitudinal section through the tent in open or operative condition;

Fig. 3 is a perspective view of the tent viewed from the front thereof;

Fig. 4 is an elevation of a section of one of the frame rods or pipes, with a portion broken away;

Fig. 5 is a detail view showing how the frame rod is connected to a transverse tube;

Fig. 6 shows a detail of means for lengthening the frame elements at will;

Fig. 7 shows how the sectional frame member is connected to the body of the tent;

Fig. 8 is a partial plan view of the manner of supporting the ventilator hood and the top of the tent from the frame; and,

Fig. 9 is a perspective view of how small a package the tent forms when all packed up in a bag ready to be carried away.

As seen in the drawings, illustrative of the preferred form of the invention, there is a tent body construction of suitable water- and weather-proof material having sharply sloping front, rear, and side walls numbered respectively 10, 11, 12 and 13, all of which are tightly connected at their top edges to a top portion 14 which is so related

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to the other portions that when the parts are extended, it will slope gradually downwardly and to the rear as shown particularly in Figures 1 and 2. At their bottoms, these walls are connected in a water- and weather-proof manner to a flat substantially polygonal ground piece 15.

Preferably, the lower portion of the front wall 18 is formed of netting material 16 connected along vertical and horizontal lines 17 by slide fasteners to permit ready and rapid opening and closing. At the forward portion of the top wall 14, it is provided with a reticulated portion 19 which acts as a ventilator and over this portion there is disposed a hood or cover 19 with a closed front wall 20 and open at the rear as at 21, to permit circulation and yet present the open portion of the hood at the rear of the tent. The front of the tent is provided with any suitable fly portion 22, which can be rolled back as shown in the drawings or can be extended in the usual manner when desired.

The tent body formed of the wall members thus far described is adapted to be suspended from and yet be substantially out of contact with a frame member of flexible rods, which may or may not be formed in sections. As illustrated, there are a series of frame members formed of rods such as are shown in Figure 4, which take, in one embodiment, the form of tubes 23 which may be connected in sections by means of solid connector rods 24 which are adapted to fit snugly into the ends of adjacent tubes, as seen in Figure 4. Thus the length of the frame members can be made as desired by building up and connecting the requisite number of sections as shown.

These frame members are connected to the tent body by being inserted into elongate sleeves of cloth 25, which are formed along the corners of the tent body where the vertical walls meet and extend down to the ground piece 15. The frame members extend up from the corners of the ground piece 15 at rather sharp angles, and at their upper ends, the connector rods or pins 24 thereon extend into holes 26 in transverse tubes 27 seen in Figure 5. In Figures 1 and 2, it is clear that there are two of these cross tubes 27, one across between the frame members at the front of the top portion 14 of the tent body portion, and another across the rear of the tent body portion 14. Cords or tie elements of suitable material, such as 28, extend from loops 29 on the body material and are wrapped around the frame elements 23 or to the cross tubes 27 and then connected at their other end to the loops 29. As shown in Figure 6, the cords may be knotted and pass through holes in the elements 23 and then be fastened to the tent body in any desired manner. Thus it is clear that the top of the tent body is connected to and supported from the frame elements of the tent at least at the corners thereof, and this suspension tends to keep the side walls and the top pulled tight and prevents sagging thereof, so that the interior of the tent is as commodious as possible. This suspension, it is seen, will also hold the top of the tent with a slight slope from the front downwardly to the rear of the tent.

The ventilator 18 with its hood portion 19, is kept open when the tent is put up by means of straps 30, which are connected to the opposite side of the hood and pass over and around the adjacent frame elements 23, which extend across the top of the tent top portion 14. In this extension, the elements 23 are disposed in a slightly sloping downward and rearward plane and are connected to suitable holes in the transverse tubes at their ends as shown. The straps 30 are con-

nected by suitable tie members, such as cords 31 shown in Figure 8. Thus the hood of the ventilator is kept readily fully open with the opening facing to the rear of the tent which is generally disposed away from the prevailing winds of the site selected. As is clearly seen from an inspection of Figure 2, the end connection between the frame tubes 23 and the cross tubes, is such that the frame elements pass up at a sharp angle to meet the cross tubes and then extend in a rather flat manner across the top of the tent. Preferably, the frame members are disposed as shown, extending from corresponding corners of the tent up and alongside the top portion 14. In this disposition of the frame members, it is easy to give a four point suspension to the top of the tent to keep it as flat as possible and give a maximum of head room within the tent. With the weight of the tent body thus suspended from within the frame, it is seen that the frame members are placed under stress of tension which tends to bow them and keep them taut. When thus suspended, the body tapers from the ground line to a sloping streamlined flat roof providing far more space with the utmost economy of material and weight. The body of the tent when up, presents no vertical surfaces on any side, but are evenly streamlined to the wind in all four directions from the ridge to the ground line. The tents have no inside poles or brace members providing full unobstructed usable space. The tent body is completely suspended by webbing sleeves and draw cord ropes or cords to its outside resilient frame.

While the invention has been described in detail and with respect to the preferred form shown in the drawings, it is not to be limited to such details and forms since many changes and modifications may be made in the invention without departing from the spirit and scope of the invention in its broadest aspects. Hence, it is intended to cover any and all forms and modifications of the invention which may come within the language or scope of any one or more of the appended claims.

What I claim as my invention, is:

1. A tent body having a polygonal ground piece, side walls connected thereto and extending upward at a sharp angle, a top piece of polygonal shape and sloping slightly toward the rear and connected along its edges to the upper edges of the respective side walls, frame members of flexible material extending up from the corners of the ground piece to the corners of the top piece but out of contact therewith, frame members of flexible material extending along the side edges of the top piece but above the same, cross members extending across the front and rear edges of the top of the body but above the same, means to connect the adjacent ends of the frame members to the cross members, and means to suspend the tent body within but out of contact with the frame members and under tension.

2. A tent body having a roof, a ventilator therein, a hood over the ventilator, flexible frame elements extending along and above the sides of the roof, straps on the hood to extend over the frame members, and cords to connect the ends of the straps to hold the hood elevated and connected to the frame.

3. A tent frame comprising flexible sectional tubular elements extending upwardly along the corners of the tent, transverse tubes extending between the upper ends of pairs of said members, said tubes having apertures therein and said members having snug fitting rods or con-



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nectors in their ends to extend into said holes and connect the tubes with the frame members, and frame members of similar form extending between said transverse tubes across the top of the tent.

4. A tent body having substantially flat sharply inclined walls extending upwardly, said walls connecting to the respective sides of a rearwardly sloping top piece, flexible frame members extending upwardly at a sharp angle along the corners of the body to respective corners of the top piece, transverse frame members connecting respective upper ends of said upwardly extending frame member, and flexible frame members extending from said transverse members along the sides of the top piece, and means to suspend the body of the tent within said frame members but substantially out of contact therewith.

5. A tent body having substantially flat sharply inclined walls extending upwardly, said walls connecting to the respective sides of a rearwardly sloping top piece, flexible frame members extending upwardly at a sharp angle along the corners of the body to respective corners of the top piece, transverse frame members connecting respective upper ends of said upwardly extending frame member, and flexible frame members extending from said transverse members along the sides of the top piece, and means to suspend the body of the tent within said frame members but substantially out of contact therewith, a ventilator in the top piece, a hood thereover, and means to tie the hood in open position to the frame members extending along the side of the top piece.

6. A tent body having substantially flat sharply inclined walls extending upwardly, said walls connecting to the respective side of a rearwardly sloping top piece, sleeves at the corners of the body and extending partly up the same, flexible members with their lower ends disposed in said sleeves and extending upwardly at a sharp angle along the corners of the body to respective corners of the top piece, transverse frame members connecting respective upper ends of said upwardly extending frame members, flexible frame members extending from said transverse members along the sides of the top piece, the ends of the frame members extending into holes in said transverse member, tie cords connected to the corners of the top piece and adapted to be connected to the frame members to suspend the body within the frame members but substantially out of contact therewith.

7. A tent body having substantially flat sharply

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inclined walls extending upwardly, said walls connecting to the respective side of a rearwardly sloping top piece, sleeves at the corners of the body and extending partly up the same, flexible members with their lower ends disposed in said sleeves and extending upwardly at a sharp angle along the corners of the body to respective corners of the top piece, transverse frame members connecting respective upper ends of said upwardly extending frame members, flexible frame members extending from said transverse members along the sides of the top piece, the ends of the frame members extending into holes in said transverse member, tie cords connected to the corners of the top piece and adapted to be connected to the frame members to suspend the body within the frame members but substantially out of contact therewith, a ventilator in the top piece, a hood thereover, and straps extending from the hood around the frame members, and cords connecting the ends of the straps to hold the hood in open position within the frame members.

8. A tent construction including a tent body formed integrally of a polygonal ground piece, side walls connected thereto and extending upward at a sharp angle, and a top piece of polygonal shape connected along its edges to the upper edges of the respective side walls, four frame members of flexible material convergingly extending up from the corners of the ground piece toward the corners of the top piece but out of contact therewith, the bottoms of said frame members adapted to repose on the ground without being inserted therein, frame members of flexible material extending along the side edges of the top piece but above the same, cross members extending across the front and rear edges of the top of the body but above the same, means to connect the adjacent ends of the frame members to the cross members, and means to suspend the tent body within but out of contact with the frame members and under tension.

ROBERT L. BLANCHARD.

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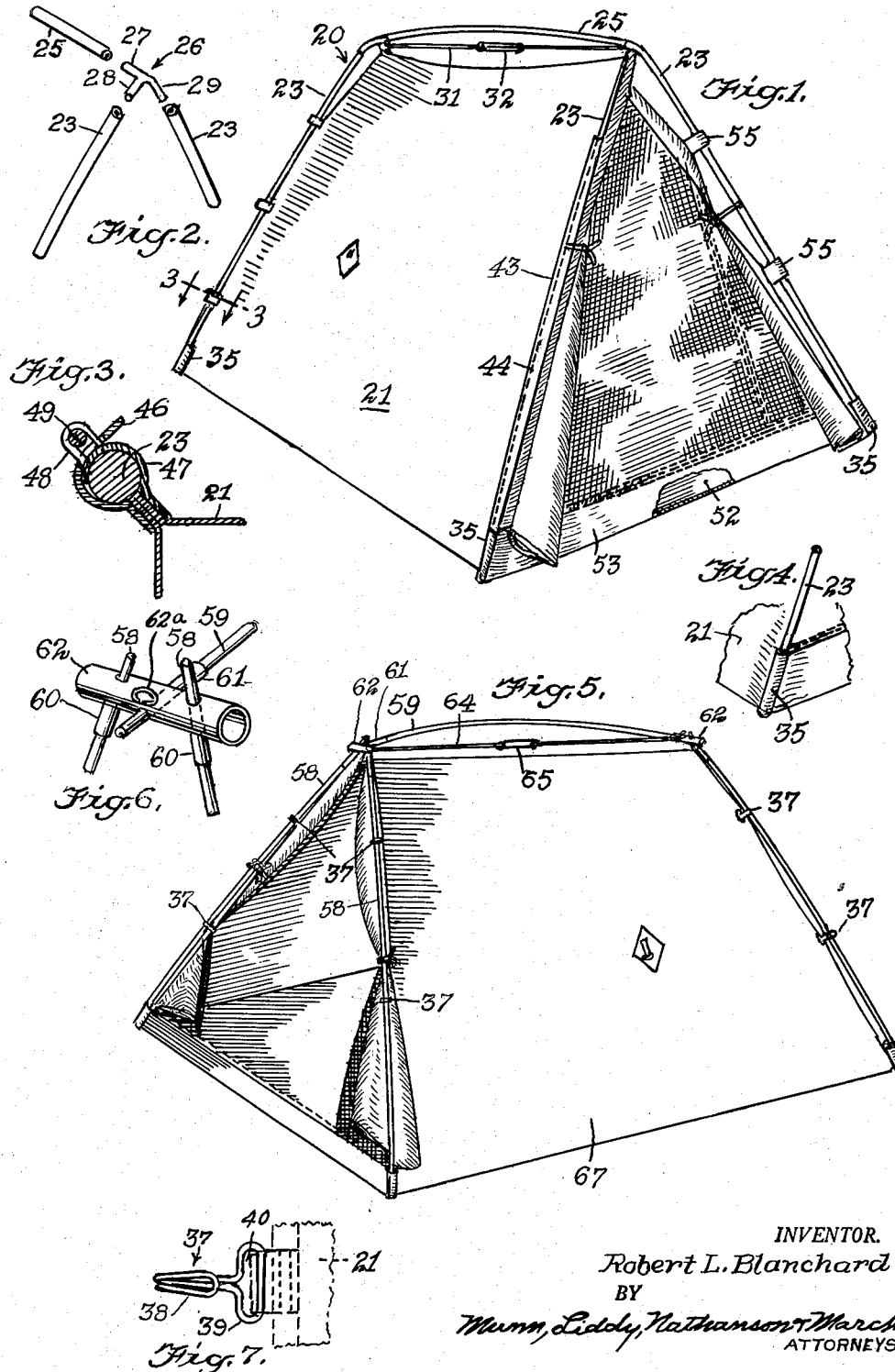
Dec. 6, 1960

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2,963,030

PORTABLE COLLAPSIBLE SHELTER

Filed Feb. 16, 1956



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## United States Patent Office

2,963,030

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## PORTABLE COLLAPSIBLE SHELTER

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Filed Feb. 16, 1956, Ser. No. 565,963

4 Claims. (Cl. 135—3)

This invention relates to portable shelters, such as tents, screened or enclosed cribs, cabanas, portable screen porches and the like.

An object of the invention is to provide a novel and improved portable shelter construction of the above class having unique features by which it may be very quickly set up and dismantled.

Another object of the invention is to provide an improved shelter construction as above characterized, which may be packed into very little space when dismantled.

A still further object of the invention is to provide an improved shelter construction of the above type and which is characterized by a relatively rigid supporting frame portion and a flexible or non-supporting screen or wall portion, wherein the frame portion may be first readily set up in its entirety and thereafter the screen or wall portion quickly and easily attached to the frame portion, the reverse operation being carried out when dismantling the shelter.

Yet another object of the invention is to provide an improved frame construction for a portable shelter, which is strong and sturdy and yet permits of quick and easy assembly or setting up of the frame, and also dismantling thereof.

A feature of the invention resides in the provision of an improved frame construction for a portable shelter as above characterized, which by suitable modification of the length of certain of the components, will enable frames of different configurations and shapes, and functions to be readily obtained.

A still further object of the invention is to provide improved means for attaching the screen or wall portions of a shelter to the rigid frame portions thereof.

Another feature of the invention resides in the provision of improved attaching means between the screen or wall portion and the frame structure, which permits of easy and rapid assembly and disassembly, even under adverse and severe conditions of weather.

Other features and advantages will hereinafter appear.

In the drawings accompanying this specification, similar characters of reference indicate corresponding parts wherever possible in the several views, in which:

Figure 1 is a perspective view of a portable shelter in the form of a tent made in accordance with the invention;

Fig. 2 is an exploded perspective view of an upper juncture of the frame structure of the tent shown in Fig. 1;

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a fragmentary perspective view of a lower corner portion of the tent shown in Fig. 1;

Fig. 5 is a perspective view of a portable shelter in the form of a tent, illustrating another form of the invention;

Fig. 6 is a fragmentary perspective view of an upper juncture portion of the frame structure of the tent shown in Fig. 5;

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Fig. 7 is a front elevational view of a hook member as provided by the invention, for the purpose of attaching the flexible screen or wall structure of a shelter to the rigid frame structure thereof.

Referring to Figs. 1—4 the improved portable shelter as provided by the invention comprises essentially a relatively rigid frame structure 20 to which there is releasably attached a flexible wall or covering structure 21.

The frame structure 20 comprises a plurality of elongate, substantially rigid and yet slightly flexible, upstanding frame members 23, here shown as four in number. The frame structure also comprises a substantially horizontal, elongate, rigid yet somewhat flexible frame member 25. As shown in Fig. 2, the frame members 23 and 25 have tubular or socketlike adjoining terminal portions, and this may be effected by making the members of tubular stock as shown, or by making the members of solid rod or bar stock and providing sleeves on the terminal portions, as will be readily understood.

In accordance with the present invention I provide a novel and improved junction or connector means for rigidly joining the frame members 23 and 25. This junction means comprises a multi-pronged connector member 26 which may have prongs 27, 28 and 29 receivable in the socketed ends or terminal portions of the frame members 23 and 25. The connector member 26 may be formed in any suitable manner, as for example by bending a short section or length of solid bar stock into a V-shape and welding another short section of bar stock to the yoke of the V.

In accordance with the invention, in conjunction with the novel junction means illustrated in Fig. 2, I provide a tension means for effecting a flexing of the horizontal frame member 25, thereby to cause all of the frame members 23, 25 of the structure to be placed under appreciable stress and to be securely held together in assembled relation with each other. As shown in Fig. 1, this tensioning means may comprise a tie cord 31 at its extremities joined to the upper corners of the tent, said tie cord having an elastic link 32 by which it may be connected under tension to effect the flexure of the member 25 as illustrated.

It will be understood that the frame structure as above set forth is first assembled by inserting the prongs 27, 28 and 29 of the connector members 26 in the proper terminal portions of the frame members, and thereafter inserting the lower ends of said rods in the corner sockets 35.

Prior to such stressing or even prior to assembly of the frame members, the lower terminal portions of the members 23 may be disposed in sockets 35 by which they are held in fixed relative positions. Such sockets, for example, may be provided on the lower portions of the covering or flexible wall structure 21 of the shelter, and may advantageously be in the form of fabric sleeves.

Further, in accordance with the invention, I provide novel and improved means by which the flexible wall structure 21 is secured to the frame structure 20. Referring to Figs. 5 and 7, the wall structure 21 may have a plurality of hook members 37, each of said hook members having a curved bill portion 38 adapted to extend around the frame member 23, and having a base portion 39 provided with a relatively long slot 40 by which the hook may be secured to the corner seam of the cover structure, either with a suitable piece of fabric or webbing or by suitable stitches or other fastening means. By the provision of the hooks 37 the wall structure 21 may be easily and quickly attached to or detached from the frame structure 20 of the tent.

By this invention I also provide another novel and advantageous means by which the wall structure 21 may

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be secured quickly and easily to the frame structure 20, and as quickly and easily detached therefrom. Referring again to Fig. 1, there is shown an elongate sleeve 43 secured to a front corner seam of the cover structure 21, said sleeve having an elongate, longitudinal cut and being provided with cooperable zipper means by which the sleeve may be separated into two distinct spread-apart portions for introducing or removing an upstanding frame member 23, and by which the sleeve may be secured around such frame member to attach the wall structure 21 thereto. I prefer to so arrange the zipper means 44 on the sleeve 43 that the zipper is open when the slider thereof is disposed at the lower portion of the tent, and vice versa.

Additionally, in accordance with the invention, I provide yet another improved and advantageous means for attaching the wall structure 21 to the frame structure 20. Referring now to Figs. 1 and 3, the wall structure 21 may be provided along its corner seams with pairs of flexible tabs 46, 47 formed of webbing or other suitable material, said tabs having apertures and cooperable hasp means 48 in said apertures and adapted to receive a single pull cord 49 by which the hasp means may be locked in closed positions. The tabs 46, 47 are adapted to extend around the frame member 23 when the hasp means thereof are closed, thereby to secure the wall structure 21 to the frame member. By merely removing the pull cord 49 from the hasps, which may be done by a quick and simple operation, the wall structure 21 may be quickly freed from the frame structure 20, as will be readily understood.

By the present invention the tent construction shown in Fig. 1 may be provided with a rigid floor member 52 which is water-impervious and which may carry the sockets 35, and the floor member 52 may have attached to it side walls 53 which are also water-impervious, thereby to enable the tent to float and be buoyant if it should be placed upon a surface of water.

In place of the hooks 37 shown in Fig. 5, loops 55 of fabric or webbing may be utilized, said loops being secured to the corner seams of the wall structure 21.

A portable shelter in the form of a tent illustrating another form of the invention is shown in Figs. 5 and 6. In these figures there are illustrated upstanding frame members 58 and a substantially horizontal frame member 59, all in the form of solid rods, said members being provided adjacent their terminal portions with fixed collars 60 and 61 acting as stops for a junction means. As seen in Fig. 6, the junction means comprises a short length of tubing 62 having transverse openings in its walls, constituting sockets for receiving the terminal portions of the frame members 58, 59. While the junction member 62 is shown as a short length of tubing, it should be understood that it may be made of solid stock and of any suitable material, such as metal, reinforced plastic, wood, etc. I provide a tension means in the form of a tie cord 64 to cause flexure of the frame member 59 and stressing of all of the frame members, the tie cord 64 having an adjustment such as an elastic link 65 and being secured at its extremities to the terminal portions of the horizontal frame member 59.

The shelter of Fig. 5 may have a flexible wall structure 67 provided with hooks 37 as described above, by which

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it may be quickly and easily attached to the frame structure and detached therefrom, two hooks 37 at the front and rear peaks being received in openings 62a of the junctions 62.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. An external, exposed frame construction for a portable shelter, comprising pairs of elongate upstanding frame members; a single, uncovered substantially horizontal, elongate flexible frame members; rigid and non-flexing immediately separable pin-and-socket means rigidly joining one terminal portion of the horizontal frame member to the upper two terminal portions of one pair of upstanding members; rigid and non-flexing immediately separable pin-and-socket means rigidly joining the other terminal portion of the horizontal member to the upper terminal portions of the remaining pair of upstanding members; and means comprising an elongate, thin and flexible tension element extending below said horizontal frame member in closely-spaced relation thereto, said element being outwardly exposed and uncovered, and causing a flexing of said horizontal frame member, thereby to impose flexing forces on the upstanding frame members through said pin-and-socket means when the lower terminal portions of the upstanding frame members are held immovable; and means adapted to engage the ends of said horizontal member, for suspending the ridge portion of a tent covering below and coextensive with said horizontal member and said tension element.

2. The invention as defined in claim 1, in which the rigid joining means comprises junction members having appreciable tensile strength and having sockets receiving the said terminal portions of the frame members.

3. The invention as defined in claim 1, in which the element causing flexing of the horizontal member comprises an adjustable tie rod connected with terminal portions of said horizontal member.

4. The invention as defined in claim 1 in which there is a rigid, water-impervious floor member secured to the lower terminal portions of the upstanding frame members, and in which there are water-impervious side panels secured to said floor member and to said upstanding frame members, thereby to enable the shelter to float on the water.

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March 27, 1962

V. L. SCOTT

3,027,189

COLLAPSIBLE SHELTER

Filed Aug. 14, 1959

2 Sheets-Sheet 1

FIG. 1.

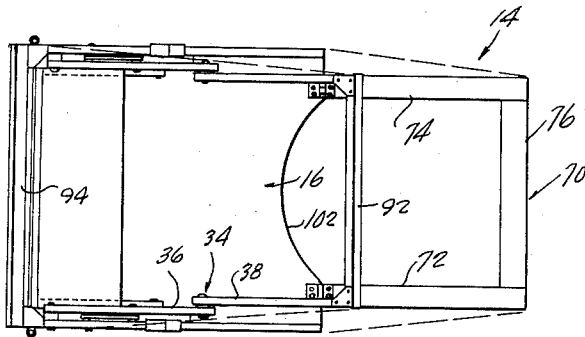


FIG. 4.

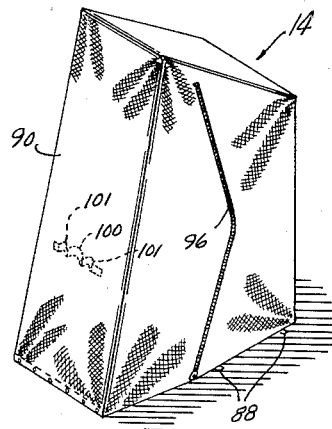


FIG. 2.

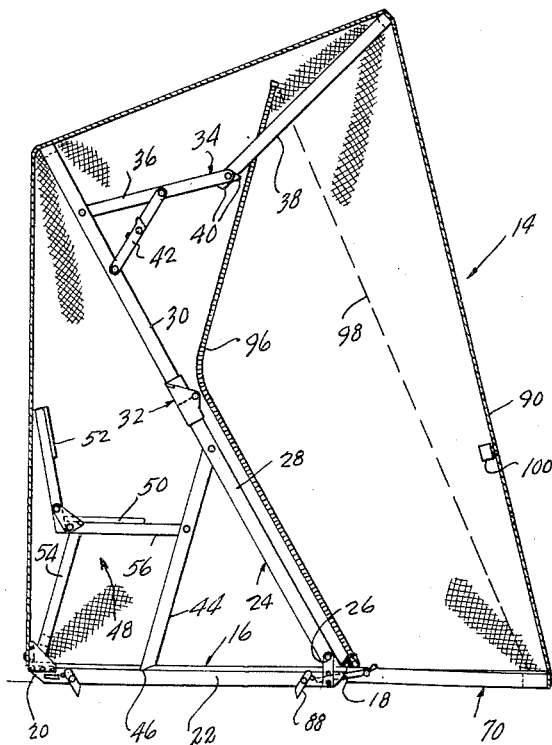
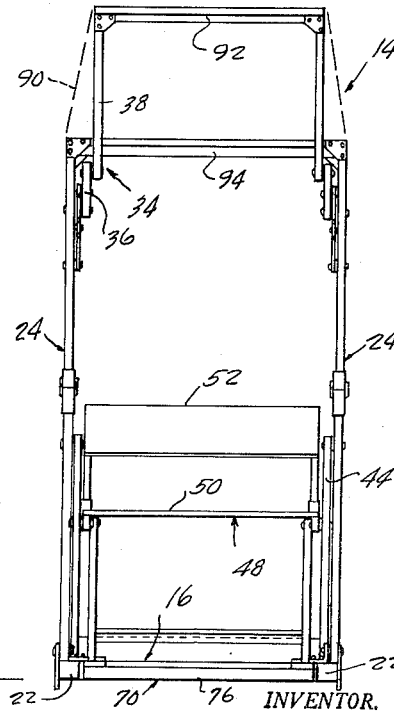


FIG. 3.



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2 Sheets-Sheet 2

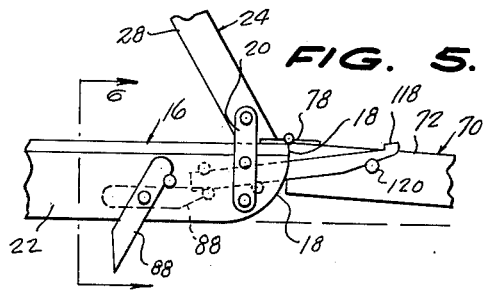


FIG. 5.

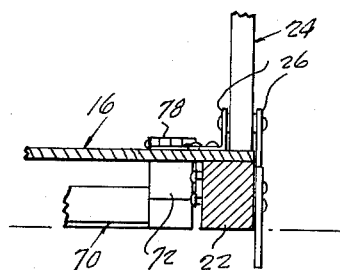


FIG. 6.

FIG. 7.

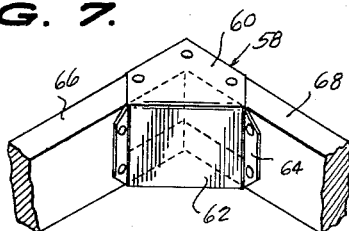


FIG. 8.

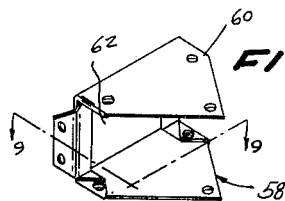


FIG. 9.

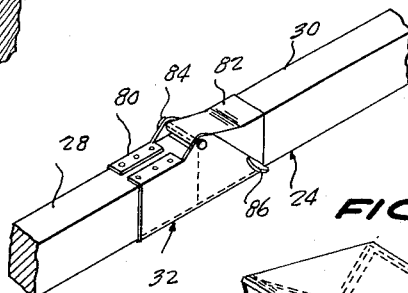
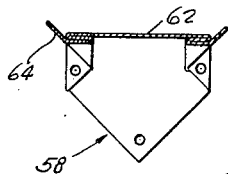


FIG. 12.

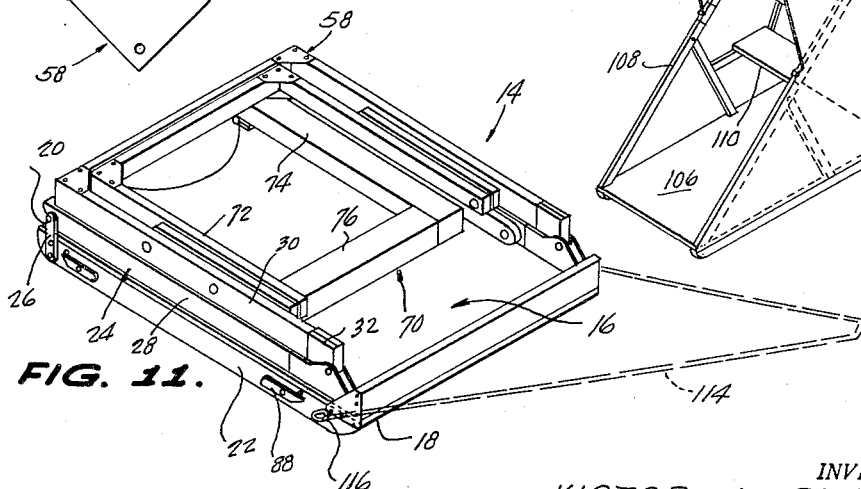


FIG. 11.

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# United States Patent Office

3,027,189

Patented Mar. 27, 1962

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3,027,189

## COLLAPSIBLE SHELTER

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Filed Aug. 14, 1959, Ser. No. 833,714

4 Claims. (Cl. 297—184)

The present invention relates to a collapsible shelter such as is employed for protecting an individual from the elements while the individual fishes through ice on a body of water.

Presently employed are shelters for fishermen while fishing through the ice on a body of water, the shelters being constructed in many sizes and from many materials and each being intended for ready portability and transport to and from the body of water. Many such shelters are constructed so as to collapse to sled form for pulling over the surface of the ice to the selected location for fishing. Generally such shelters fail to meet the requirements for ready portability to and from the body of water and are cumbersome and difficult to erect and to dismantle. Others of such contemplated shelters are too bulky when collapsed to be easily and with facility stored in the trunk compartment of an automobile.

An object of the present invention is to provide a collapsible shelter which when collapsed is of a size readily stored within the trunk compartment of an automobile.

Another object of the present invention is to provide a collapsible shelter which lends itself to erection with ease and facility and by a single individual.

A further object of the present invention is to provide a collapsible shelter which is light in weight, one having runners for transport over the surface of a body of ice, one sturdy in construction and simple in structure, and one which is economically feasible.

These and other objects and advantages of the present invention will be fully apparent from the following description when taken in conjunction with the annexed drawings, in which:

FIGURE 1 is a top plan view of the shelter of the present invention in the erected condition;

FIGURE 2 is an elevational view with the covering of the shelter cut away along one side;

FIGURE 3 is a front elevational view of the covering removed but indicated in dotted lines;

FIGURE 4 is an isometric view of the shelter, on a reduced scale, shown with the covering in closed position;

FIGURE 5 is a detail view of one of the runners employed with the shelter of the present invention, portions of the runner and support and a portion of the forwardly extending open frame being broken away;

FIGURE 6 is a view taken on the line 6—6 of FIGURE 5;

FIGURE 7 is a fragmentary isometric view of one of the corners of the frame of the shelter, showing the employment of an improved form of brace;

FIGURE 8 is an isometric view of the brace employed in FIGURE 7;

FIGURE 9 is a view taken on the line 9—9 of FIGURE 8;

FIGURE 10 is an isometric view of the hinged joint connecting the upper and lower portions of one of the supports of the shelter;

FIGURE 11 is an isometric view of the shelter in collapsed condition, a rope being shown in dotted lines attached to the rearward end for pulling the shelter on the surface of a body of ice; and

FIGURE 12 is an isometric view of a modified form of the shelter according to the present invention.

Referring in greater detail to the drawings in which like numerals indicate like parts throughout the several views, the collapsible shelter according to the present invention is shown in FIGURES 1 to 4 in erected condi-

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tion and in FIGURE 11 in collapsed condition, the shelter being designated generally by the reference numeral 14. The shelter 14 includes a floor 16 having a front end 18 and a rear end 20. Along each side edge of the floor 16 is a runner 22 having its ends curved, as shown in FIGURE 5.

A pair of support members 24 are arranged in a sloping direction and are positioned upon the floor 16 so that their lower ends are adjacent the front end 18 of the floor and the upper ends are spaced above and adjacent the rear end 20 of the floor.

Means, embodying a pair of hinged straps 26 for each support member 24, connects each support member 24 to the floor 16 and runner 22 for pivotal movement of the support member 24 from the upwardly sloping position to the nested collapsed position shown in FIGURE 11.

Each support member 24 is fabricated of two sections 28 and 30 hingedly secured together at their one ends by a hinge structure 32, as shown in FIGURE 10.

An arm 34 extends in an outstretched position and is disposed between the portion of each of the upper sections 30 of the support members 24 adjacent the upper end and the front end 18 of the floor 16. Each arm 34 is fabricated of two parts 36 and 38 hingedly connected together at their one ends with the part 36 having its other end pivotally connected to the adjacent support member section 30 inwardly of and spaced from the upper end of the latter for movement from the outstretched position to a position in collapsed relation with respect to the adjacent support member 24.

The confronting and pivotally connected ends of the arm sections 36 and 38 are provided with keepers, as at 40 in FIGURE 2, engaging the opposite section and preventing their movement from the slightly angled outstretched position further in the clockwise direction relative to each other. Such construction is conventional and not here further detailed for reasons of simplicity.

A brace 42, similarly provided with keepers, extends between the support section 30 and the midpart of the arm section 36 and serves, when in the position shown in FIGURE 2, to hold the arm sections 36 and 38 in the outstretched position.

A brace element 44 is arranged in a sloping direction and is positioned upon the floor 16 between the portion of each support member 24 adjacent the lower end and the rear end 20 of the floor 16. The upper end of each brace element 44 is pivotally connected to the adjacent support member section 28 at a point spaced below and adjacent the hinge structure 32. The hinge connection of the brace element 44 to the adjacent support member 24 permits its movement from the upright position to a collapsed position relative to the support member 24. The lower end of each brace element 44 rests upon the floor 16 which may be notched, as at 46 in FIGURE 2, to receive the brace element 44.

A seat structure, designated generally by the reference numeral 48, is positioned upon the floor 16 between the brace elements 44 and the rear end 20 of the floor 16 and is connected to the floor 16 and to the brace elements 44 for movement to a collapsed position when the brace elements 44 have executed their movements to the collapsed positions. The seat structure 48 includes a horizontally disposed seat 50 and a back 52 rising from the seat 50. A pair of back legs 54 are pivotally connected to the rear end of the seat 50 and have their lower ends pivotally connected to the adjacent parts of the floor 16. The seat back 52 is pivotally connected to the side rails 56 of the seat structure 48 for movement on the upright position to a position folded down upon the seat 50, such movement being indicated by an arrow in FIGURE 2. The forward ends of the side rails 56 are pivotally connected

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to the brace elements 44 so that when the latter is moved in the direction indicated by the arrow in FIGURE 2, the back legs 54 and side rails 56 collapse to an aligned position substantially parallel to the floor 16 and resting thereon between the collapsed support sections 28 and 30.

An important feature of the present invention is illustrated in FIGURES 7 to 11 and consists in a corner brace 58 fabricated of rigid sheet metal, plastic or the like. The corner brace 58 has two horizontally disposed plate members 60 arranged in vertical spaced relation and joined together along their complementary one ends by a vertically disposed backing member 62. The opposed ends of the backing member 62 are folded back upon themselves, as shown in FIGURE 9, to form ears 64 which are arranged at right angles with respect to each other. In the securing of a corner brace 58 in the frame of the shelter 14, as shown in FIGURE 7, the plate members 60 overlie and underlie the junction of two frame pieces 66 and 68, the backing member 62 bridges the corner, and the ears 64 lie parallel and are secured to the inner faces of the pieces 66 and 68. Suitable fastening elements such as nails or screws are used to secure the ears 64 and the plate member 60 to the adjacent parts of the pieces 66 and 68.

A horizontally disposed open frame 70 is positioned forwardly of the front end 18 of the floor 16 and has one end connected to the floor 16 for movement from the horizontal position to a position in which the other end is above and spaced from the floor 16. The hollow frame 70 is shown most clearly in FIGURE 1 and consists in side members 72 and 74 joined at their complementary one ends by an end member 76. As shown in FIGURE 5, with respect to the side member 72, hinges 78 connect the other complementary ends of the side members 72 and 74 to the front end 18 of the floor 16.

Referring again to FIGURE 10, the hinge structure 32 is seen to consist of a pair of box members 80 and 82 receiving the adjacent portion of the support member sections 28 and 30 and hingedly connected together by a pivot pin 84. A tab 86 projects outwardly from the one box member 82 and is fixedly secured by solder or other means to the latter. The tab 86 engages the adjacent edge of the extended portion of the box member 80 and limits the pivotal movement of the sections 28 and 30 relative to each other.

On the exterior face of each runner 22 are a pair of oppositely arranged spur members 88, each pivotally connected to the runner 22 for swinging movement from the full line position to the dotted line position in FIGURE 5.

A covering 90 extends over and is supported by the free ends of the arm sections 38 and a top piece 92 which extends between the free ends of the sections 38. The covering 90 is also supported upon the upper ends of the support member sections 30, there being a top piece 94 extending between the upper ends of such sections 30. The covering 90 encloses the support members 24, the braces 44, and the arms 34, and also encloses the seat structure 48 and the frame 70. The free edge of the covering 90 is secured to the perimeter of the floor 16 rearwardly of the front end 18 and to the portion of the perimeter of the frame 70 forwardly of the front end 18 of the floor 16. One or other of the sides of the shelter 14, or both if desired, may be provided with a zipper 96 in the covering 90 for ingress and egress into the shelter 14. Preferably, the zipper 96 is arranged in two straight sections angled with respect to each other, as shown in FIGURE 2. This permits folding of the zipper flap along a fold line substantially as indicated by a dotted line 98 in FIGURE 2. The construction of the zipper is conventional and not detailed here as not being a part of the present invention.

A handle 100 is provided on the inner surface of the covering 90 at a point immediately forward of the seat 50 so that upon grasping of the handle 100 and the application of a manually applied pulling force thereto, the frame 70 may be lifted from the ice surface from the

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horizontal position to an upwardly sloping or vertical position, permitting the throwing of fish forwardly of the shelter 14 as the fish are removed through the hole in the ice over which the shelter 14 has been positioned. The forward edge of the floor 16 is arcuately curved, as at 102 in FIGURE 1, affording easy access to an occupant of a seat 50 of a hole in the ice when the shelter 14 is positioned so that the frame 70 is circumscribed about such ice hole. Loops 101 on each side of the handle 100 are adapted to receive therethrough fishing poles or the like when the shelter is erected for fishing.

In FIGURE 12, a modified form of the shelter is shown and is designated generally by the reference numeral 104, the shelter 104 having a floor 106, supports 108 rising from the floor 106, a seat 110, and a covering 112. With the exception of the portion of the covering which extends from the upper front end of the shelter 104 to the floor 106, the structure of the shelter 104 is substantially the same as heretofore described with reference to the shelter 14.

In use, a rope 114, shown in dotted lines in FIGURE 11, may have its ends attached to eye formations 116 provided in the rearward end of the runners 22 and the folded and collapsed shelter 14 may be transported on the surface of a body of ice to the selected location. As will be seen in FIGURE 11, all of the components of the frame of the shelter 14 fold easily to a nested position within the perimeter of the floor 16 from which nested position they are erected with ease and facility by a single individual with or without the covering 90 encompassing the same. When in the erected position, the shelter 14 may be positioned over and adjacent a hole in the ice for fishing therethrough with the occupant of the shelter seated comfortably upon the seat 50 and with his feet resting upon the portions of the floor 16 forwardly of the seat 50. A slidable wedge-type latch 118 (FIGURE 5) on each side of the frame 70, or one side if preferred, secures the frame 70 in the horizontal position against inadvertent or accidental raising of the same by the wind. The latch 118 normally engages a pin 120 projecting outwardly of the adjacent frame side member 72, 74 and is easily and quickly withdrawn when it is desired to raise the frame 70 from the horizontal position.

What is claimed is:

1. In a collapsible shelter, a floor having front and rear ends, a pair of support members arranged in a sloping direction positioned upon said floor so that the lower ends are adjacent the front end of said floor and the upper ends are spaced above and in the same vertical plane as the rear end of said floor, means pivotally connecting the lower ends of said support members to said floor, an arm extending in an outstretched position disposed between the portion of each of said support members adjacent the upper end and the front end of said floor and connected to the adjacent support member upper end portion for movement from the outstretched position to a collapsed position with respect to said adjacent support member, and a brace element arranged in a sloping direction positioned upon said floor between the portion of each support member adjacent the lower end thereof and the rear end of said floor and having the upper end pivotally connected to the adjacent support member lower end portion for movement from the sloping position to a collapsed position relative to the adjacent support member lower end portion and having the lower end resting upon said floor.

2. In a collapsible shelter, a floor having front and rear ends, a pair of support members arranged in a sloping direction positioned upon said floor so that the lower ends are adjacent the front end of said floor and the upper ends are spaced above and in the same vertical plane as the rear end of said floor, means pivotally connecting the lower ends of said support members to said floor, an arm extending in an outstretched position disposed between the portion of each of said support mem-

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bers adjacent the upper end and the front end of said floor and connected to the adjacent support member upper end portion for movement from the outstretched position to a collapsed position with respect to said adjacent support member, a brace element arranged in a sloping direction positioned upon said floor between the portion of each support member adjacent the lower end thereof and the rear end of said floor and having the upper end pivotally connected to the adjacent support member lower end portion for movement from the sloping position to a collapsed position relative to the adjacent support member lower end portion and having the lower end resting upon said floor, and a seat structure including a horizontally disposed seat and a back rising from said seat positioned upon said floor between said brace elements and the rear end of said floor and connected to said floor and said brace elements for movement to a collapsed condition when said brace elements have executed their movement to collapsed positions.

3. In a collapsible shelter, a floor having front and rear ends, a pair of support members arranged in a sloping direction positioned upon said floor so that the lower ends are adjacent the front end of said floor and the upper ends are spaced above and in the same vertical plane as the rear end of said floor, means pivotally connecting the lower ends of said support members to said floor, an arm extending in an outstretched position disposed between the portion of each of said support members adjacent the upper end and the front end of said floor and connected to the adjacent support member upper end portion for movement from the outstretched position to a collapsed position with respect to said adjacent support member, a brace element arranged in a sloping direction positioned upon said floor between the portion of each support member adjacent the lower end thereof and the rear end of said floor and having the upper end pivotally connected to the adjacent support member lower end portion for movement from the sloping position to a collapsed position relative to the adjacent support member lower end portion and having the lower end resting upon said floor, and a horizontally disposed open frame positioned forwardly of the forward end of said floor and having one end connected to said floor for swinging

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movement from the horizontal position to a position in which the other end is above and spaced from said floor.

4. A collapsible shelter comprising a floor having front and rear ends, a pair of support members arranged in a sloping direction positioned upon said floor so that the lower ends are adjacent the front end of said floor and the upper ends are spaced above and in the same vertical plane as the rear end of said floor, means pivotally connecting the lower ends of said support members to said floor, an arm extending in an outstretched position disposed between the portion of each of said support members adjacent the upper end and the front end of said floor and connected to the adjacent support member upper end portion for movement from the outstretched position to a collapsed position with respect to said adjacent support member, a brace element arranged in a sloping direction positioned upon said floor between the portion of each support member adjacent the lower end thereof and the rear end of said floor and having the upper end pivotally connected to the adjacent support member lower end portion for movement from the sloping position to a collapsed position relative to the adjacent support member lower end portion and having the lower end resting upon said floor, a seat structure including a horizontally disposed seat and a back rising from said seat positioned upon said floor between said brace elements and the rear end of said floor and connected to said floor and said brace elements for movement to a collapsed condition when said brace elements have executed their movement to collapsed positions, and a covering enclosing said support members, said arms, said seat structure, and said brace elements and having the free edges detachably secured to said floor.

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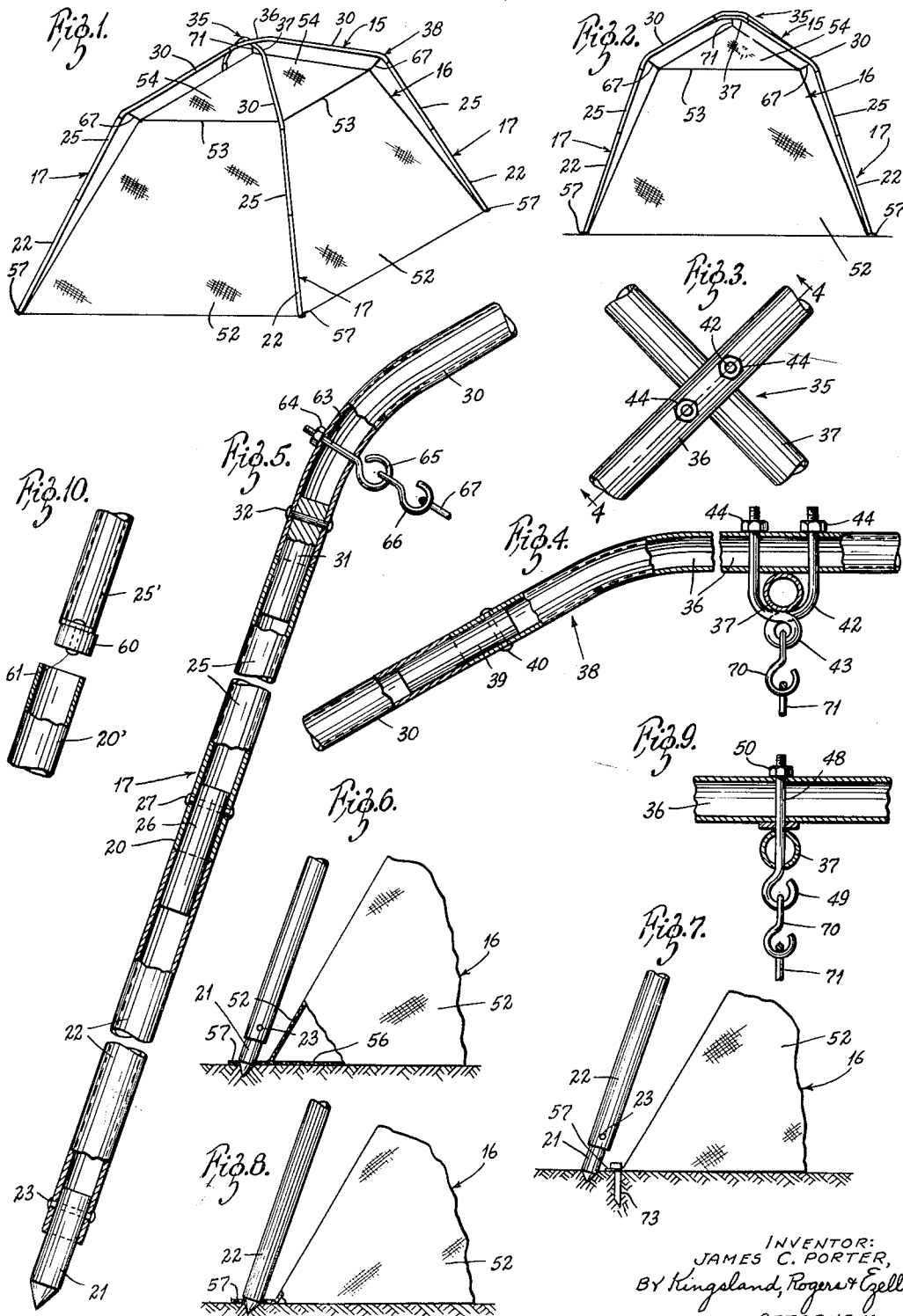
Feb. 2, 1965

J. C. PORTER

3,168,101

OUTSIDE FRAME TENT

Filed Dec. 16, 1960



INVENTOR:  
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BY Kingsland, Rogers & Egell  
ATTORNEYS

# United States Patent Office

3,168,101

Patented Feb. 2, 1965

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3,168,101

## OUTSIDE FRAME TENT

James C. Porter, New Haven, Mo., assignor, by mesne assignments, to Hawthorn Company Division of Kellwood Company, a corporation of Delaware  
Filed Dec. 16, 1960, Ser. No. 76,280  
6 Claims. (Cl. 135—1)

The present invention relates to an outside frame tent. Generally speaking, this type of tent consists of a tent supporting frame that can be set up in such a manner that the tent can be suspended from the framework rather than to be surmounted thereon.

Outside frame tents have been known heretofore. However, the present tent is designed to have notable advantages over previously known outside frame tents.

This tent comprises two principal components, namely, a self-supporting outside frame that can be set up independently of the tent itself, and a collapsible tent enclosure, usually made of fabric of some kind. The outside frame includes an assembly of crossing upright members, each of a size to extend upwardly along the side of the tent from the ground, and thence inwardly and upwardly over the top of the tent, to an apex. Connecting means joins the uprights at the apex of the tent. As will be understood, more of such cross-members can be used for polygonal tents other than the four-sided tent illustrated.

When the frame is set up with its feet secured into, or on, the ground, and the tent bottom is likewise secured to the ground, the tent is hung from the frame in such a manner that its sides are taut. The frame is quite rigid and twist-resistant, but is designed to yield sufficiently to accommodate wind stresses, and shape changes of the tent.

Among the objects of this invention is to provide a readily portable, outside-frame tent that is well-supported and strong, rather than light and yieldable. Another object is to provide a tent that, although strong, nevertheless can yield to stresses occurring during its use. And a further object is to provide such a tent that is easily collapsible into a compact package, and easily set up, despite being of strong construction.

Other objects will appear from the description to follow.

In the drawings:

FIGURE 1 is an isometric view of the tent assembled in upright position;

FIGURE 2 is a side view of the tent in assembled upright position;

FIGURE 3 is a top plan view of the connecting means for the tops of the uprights;

FIGURE 4 is a fragmentary partial section taken on the line 4—4 of FIGURE 3 through the connecting means;

FIGURE 5 is a partial broken-away section through a typical one of the uprights of the frame and including the side and the eave portion thereof;

FIGURE 6 is a view of one arrangement for securing the frame and the tent at the ground level;

FIGURE 7 is a view of another arrangement for securing the frame and the tent at the ground level;

FIGURE 8 is a third view of a way of securing the tent and the frame at the ground level;

FIGURE 9 is a view of an alternate attaching arrangement for the top connecting means of the frame; and

FIGURE 10 is a view of a modification of a means for securing two elements of the frame together in telescopic arrangement.

Generally speaking, the tent structure comprises a frame 15 and a tent 16 suspended from the frame. The

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invention is illustrated with a four-sided umbrella tent, and, as will appear, this presents the simplest embodiment of the frame and the tent. However, other similar tents of a similar shape may be used and may embody many of the features hereof.

Considering first the tent frame 15, it will be seen that it comprises four upright frame elements 17 that rise from the ground alongside and across the top of the tent. The frame elements 17 are identical in construction and the detailed description of one will suffice for all.

The frame element 17 comprises a side upright 20 that is of tubular construction and which may be in more than one separable section. As illustrated in FIGURE 5, the upright 20 includes a penetrating end 21 that has a point on it so that it may be readily forced into the ground. However, the upright 20 may have a blunt end and rest on the ground, held in position by friction due to weight of the complete assembly. This is not as desirable, or as secure. The end 21 is inserted into the lower end of a tubular element 22 and held by a rivet 23 or other appropriate means. For convenience of packing, the tube 23 has a limited length and is joined to an upper tube 25. In the illustration, the tube 25 has a plug 26 secured into it by a rivet 27 or the like. The plug element 26 can telescope into the top of the tubular member 20 so that these are secured rigidly together in an alignment but may be separated by being pulled apart axially. The upper end of the tube 25 is attached to the lower end of a bent tube 30. The tube 30 has a plug 31 secured to it by a rivet or the like 32, which plug 31 can be forced into the top of the tube 25 for removably securing these elements together.

The four uprights 17 are attached to a top connecting means 35 at the apex of the frame. The connecting means, or upper short frame member 35, is shown particularly in FIGURES 3 and 4. It consists generally of an upper tube 36 and a lower tube 37 that are, for a four-sided tent, about 90° apart. The two tubes have generally the same configuration, being bent downwardly at their opposite ends as illustrated at 38 in FIGURE 4. This figure also shows a circular plug 39 secured into the open end of the tube 38 by means such as the rivet 40. The plugs 39 are telescoped with the upper tubes 30 of the uprights 17.

It will be seen that tube 37 crosses under the tube 36. It is desirable that the two tubes be held reasonably close together and that they resist most twisting movements. FIGURE 4 shows a looped U-bolt 42 having a loop 43 at its lower end and having its upper end passing around the tube 37 and through the tube 36. They are secured to the top of the latter by nuts 44 that can be drawn up to hold the tubes 36 and 37 as close together as is desired. The bolt 42 embraces the tube 37 with sufficient space to permit some angular movements between the crossing tubes. An alternate construction is illustrated in FIGURE 9, with an I-bolt 48 having a loop 49 at its lower end. The I-bolt passes through both tubes 36 and 37 and has a nut 50 at its top. It can be drawn up to tighten the elements together as desired.

FIGURE 10 illustrates an alternate means for securing the tubular part together. It is illustrated in connection with the parts that may correspond with any of the tubular elements. In this case, the member 25' has a freely rotatable locking disk 60 eccentrically and freely rotatably mounted on its lower end on a pin 61. When the disk is inserted into the open end of the tube 20' and pushed downwardly until the lower end of the tube 25' is also contained within the tube 20', a slight twisting of the tube will cause a complete lock to be effected.

The tent 16 is illustrated as being of the type commonly called an umbrella tent. It has a plurality of side panels

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52 providing sides of a frustum of a pyramid and terminating in eaves 53. The eaves receive the bottom edges of top pyramidal panels 54. The tent preferably has a bottom wall 56 (FIG. 6). It should have projecting ears 57 by means of which the lower corners may be secured to the ground as will appear.

The frame 15 is self-supporting, and the tent 16 is adapted to be hung at its eaves and at its apex from the frame. Accordingly, the bend in the lower part of the tubular member 30 occurs just a bit above the eave line 53. Thereat there are I-bolts 63, or the like, passing through the tubular member and secured by nuts 64. The I-bolts at their other end have loops or eyes 65 that can receive hooks 66. The hooks in turn are connected to the corners of the tent eaves by cords 67. These cords preferably are tie-cords that may be drawn up as tightly as desired, but they may also be cords or links of fixed length with appropriate loops to be engaged over the hooks 66. The apex of the tent is hung to the eye 43 or 49 of a U-bolt 42 or 48, which has a hook 70 depending from it to receive a tie 71 secured to the apex of the tent.

An alternate method of attachment would be to attach the tie-cords 67 and 71 directly to open loops or eyes in I-bolts 63 and U-bolts 42 or 48.

#### *Assembly and use*

As is evident, the tent itself, which is usually made of appropriate fabric, can be collapsed and rolled up into a compact bundle. The frame can be disassembled at each of the several joints. The small top frame or connecting means 35 normally does not need to be separated since its dimensions are usually lesser than those of the rolled-up tent fabric. However, it can be readily disassembled if desired, or, in the case of FIGURE 9, its bolt can be loosened and the tubes turned into alignment.

To assemble the frame, the tubular parts are secured together in the evident manner, giving a four-sided, self-supporting, open frame structure. This frame structure 15 is secured in position on the ground by causing the tips 21 to be forced slightly into the ground as shown in FIGURE 7. On the other hand, this penetration of the tip 21 into the ground may be delayed if the arrangements of FIGURES 6 and 8 are to be used, or, if blunt ends are used, the frame structure rests in position by friction aided by a slight penetration due to weight of the assembly.

With the frame set up and the nuts 44 or 50 tightened, a strong, relatively rigid, frame structure is provided. For example, the uprights can be made of aluminum tubing of one inch outside diameter and about one-tenth inch wall thickness, for a tent of four ten foot sides. After the frame is assembled, the tent 16 is unrolled. Its bottom can be extended and the corners thereof secured to the ground. One method would be to use separate stakes 73, driven through the ears 57 to secure the corners firmly in place, with the floor 56 (where it is present), smooth and taut.

Then the sides of the tent 16 are elevated, the eave line ties 67 are secured to the hooks 66 or 65, so as to depend slightly therefrom, and the apex tie 71 secured to the hook 70 or 43. These ties 67 and 71 are drawn tight. The drawing of opposite ties 67 tight puts an even load on the frame and causes the pyramidal section of the tent to be taut all around, and drawing up the tie 71 makes the top taut.

As noted, in some instances the frame itself may be used to secure the ears 57 of the bottom of the tent in place. Two such arrangements are shown. In FIGURE 6 the lower points 21 are passed through holes in the ears 57. In FIGURE 8 the lower ends of the tubes 22 are swedged as required so that they can pass through the holes in the ears 57.

The disassembly of the tent should be evident. The

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ties for the tent 16 are released from the frame, the frame is lifted off the ears 57, and the frame elements are disassembled so that the whole may be packed away.

Among the features of the present invention are that the frame is at least substantially independent of the tent itself and can be separately set up. It is, therefore, of a design, strength and rigidity that can be independent of the tent. On the other hand, it can be readily disassembled. The structure can be used on a tent that may not have a tent floor, although it is preferable that it have one. In the event there is uneven shrinkage of the fabric of the tent or in the event there are uneven wind forces or the like, a certain amount of yield of the frame, and of twisting of the frame elements about a vertical axis at their apex is permitted to accommodate such forces. This is particularly true with the alternate construction of FIGURE 9. This alternate construction also has the advantage that in packaging the two components of the upper short frame member can be swiveled together in side by side arrangement for ease of packaging.

It will be understood that variations of details of the frame and tent construction can be made without departing from the invention hereof.

What is claimed is:

1. An outside frame tent construction, comprising: a self-supporting frame and a collapsible tent suspended therefrom; the tent having walls forming an enclosure with an apex; the frame comprising a plurality of U-shaped frame members, each comprising two elongated rod-like upright legs adapted to engage with the ground at their lower ends at spaced points and a rod-like, elongated frame top connector forming a continuation of the upright legs and extending across from one to the other to connect them together at their upper ends, whereby each elongated, rod-like frame member may extend from a first point on the ground upwardly, then over and down to the ground at a second point spaced from the first, the U-shaped frame members being disposed at angles to each other with their elongated, rod-like top connectors in crossing relationship, and means securing the frame members together with their top connectors in radiating relationship at predetermined angles to each other and their upright legs projecting outwardly and downwardly for engagement on the ground, the means comprising clamping connecting means joining the top connectors at their crossing, clamping them resistingly against twisting to alter their angular relationship but yieldable to enable their angular relation to change in response to wind forces or irregular shaping of the tent, the frame uprights being of substantially rigid but slightly yieldable material; the frame being of a size to embrace the tent and having its top above the top of the tent; and means to hang the tent from the frame and to dispose the lower part of the tent on the ground.

2. The tent construction of claim 1, wherein the connecting means at the top of the frame comprises a releasable connecting means adapted to be tightened to hold the elongated members in preset angular relationship, but releasable to permit the angular relationship to be changed.

3. The tent construction of claim 1, wherein the elongated members comprise at least two elongated members crossing each other at the apex in superposed relationship; and the connecting means comprises a releasable screw clamping device at the apex.

4. The construction of claim 1, wherein the uprights are shaped to penetrate the ground, and means at the bottom of the tent to secure the bottom to the ground.

5. The construction of claim 1, wherein there are quickly-separable means to connect the upright legs with the top connectors; each top connector being disposed at an angle to its uprights and having an angular mid-portion to provide the frame with a pyramidal top; the tent having a polygonal lower portion, a pyramidal top

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and eaves; and means to connect the eaves of the tent with the frame, said means drawing the tent eaves outwardly and holding them up.

6. An outside frame tent, comprising a frame and a tent enclosure of fabric or like material: the frame being adapted to be self-supporting independently of the enclosure; the frame having crossed frame members, each frame member consisting of opposite frame uprights adapted to engage the ground and to extend upwardly therefrom, and a frame top member joining the upper ends of the two uprights to make each frame member generally U-shaped, each U-shaped frame member being of predetermined substantially but not unyieldably rigid shape with the ends of its two uprights engageable with the ground and extending continuously from the ground along one upright, along one top member, and along the other upright to the ground; the frame members being disposed at angles to each other with one frame top member crossing beneath another, and the crossed top members radiating downwardly and outwardly from their point of crossing, clamping means securing the frame top members together at their point of crossing, said means normally maintaining them at fixed angles to each other but resistingly permitting them to yield angularly to accommodate variations in tent shape in use; the tent enclosure comprising side walls and a pyramidal top, joining the side walls in eaves, the size of the enclosure being less than the space within the frame; means depending from the apex of the frame at the crossing of the frame tops where they are joined by the means that secures them together, connected to the apex of the tent enclosure to hold the top of the enclosure and draw the tent enclosure up vertically to become taut; means adjacent the eaves to connect the frame and the

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eaves of the enclosure and draw them laterally outward toward the frame and to hold them upwardly; the frame being of rigid but yieldable material so that it forms a self-supporting substantially rigid structure without the tent enclosure, and that normally holds its pre-set shape when stressed by the tent enclosure when the tent enclosure is stretched taut within the frame, but being of components of sufficiently small cross section for their material that the components are somewhat flexible, so that such flexibility along with the resistingly yieldable means connecting the crossing of the frame tops, permits the enclosure to vary in shape under shrinkage and windage.

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## United States Patent

[11] 3,536,083

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[21] Appl. No. 730,721  
[22] Filed May 21, 1968  
[45] Patented Oct. 27, 1970

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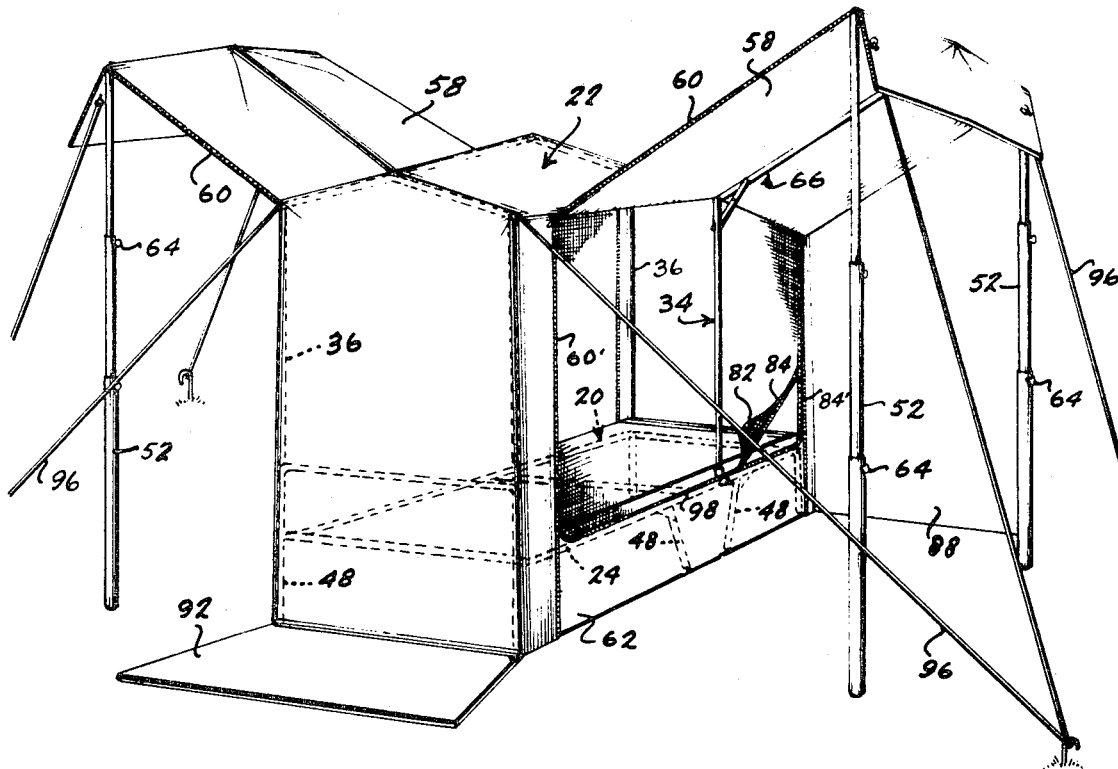
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[54] PORTABLE CAMPING SHELTER  
9 Claims, 10 Drawing Figs.

[52] U.S. Cl. .... 135/1;  
5/113; 135/4  
[51] Int. Cl. .... A45f 1/00;  
E04b 1/347  
[50] Field of Search ..... 5/112—114;  
135/1—5

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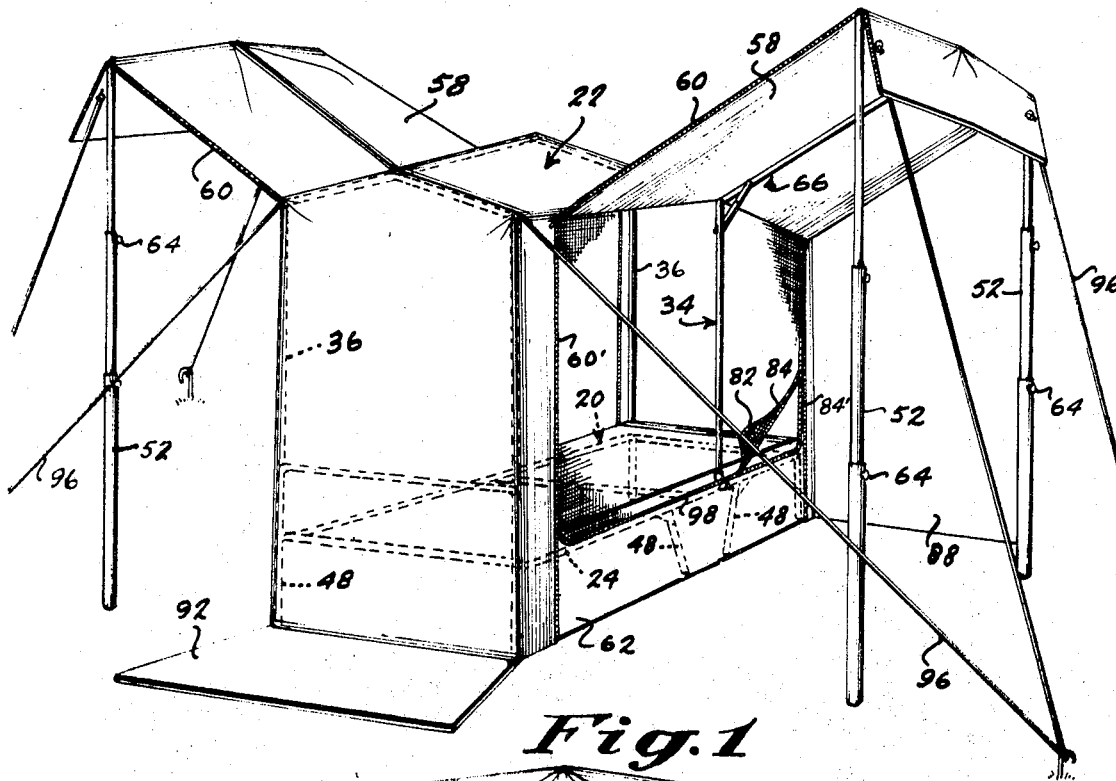
**ABSTRACT:** A portable camping shelter which unfolds readily to provide a bed and enclosing cover therefor. The shelter includes a support structure composed of integrated members pivotally interconnected to permit movement thereof from a compact, collapsed position to an open position at which a full size bed is formed together with upstanding cover supporting members disposed at the center and ends of the bed, and a cover member fixed to the support structure and arranged to assume a position in covering relation about the cover supporting members as the structure moves to its open position. Additionally, the cover surrounds and protects the shelter in its collapsed position.



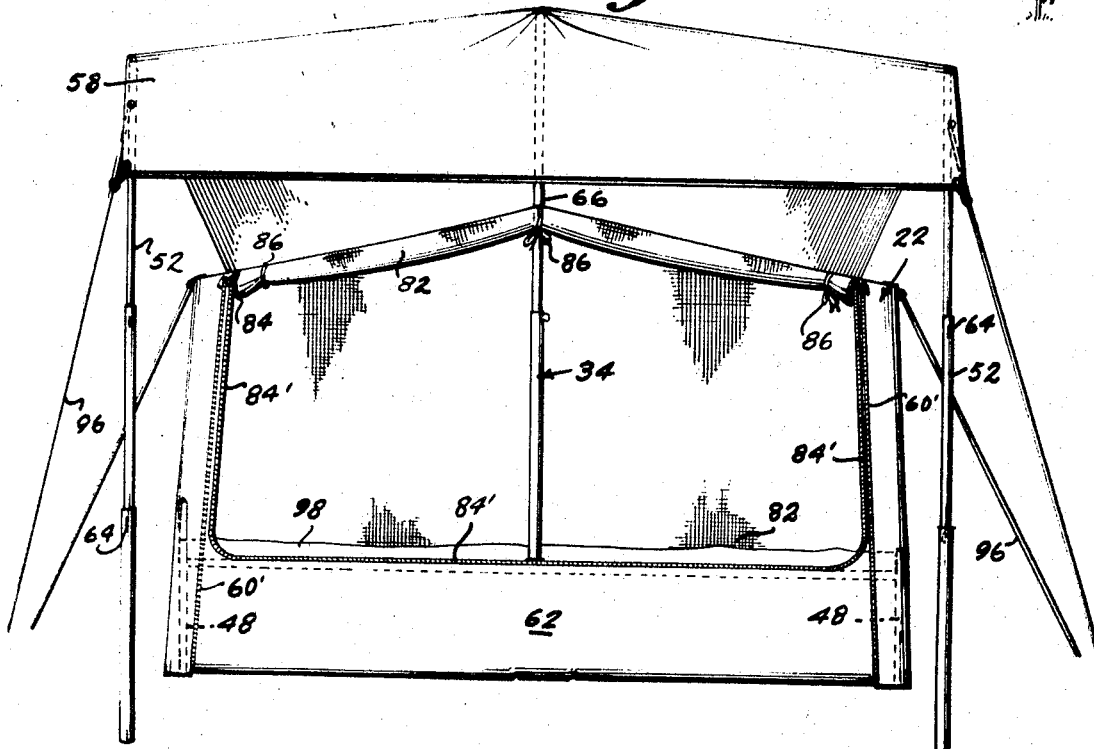
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*Fig. 1*



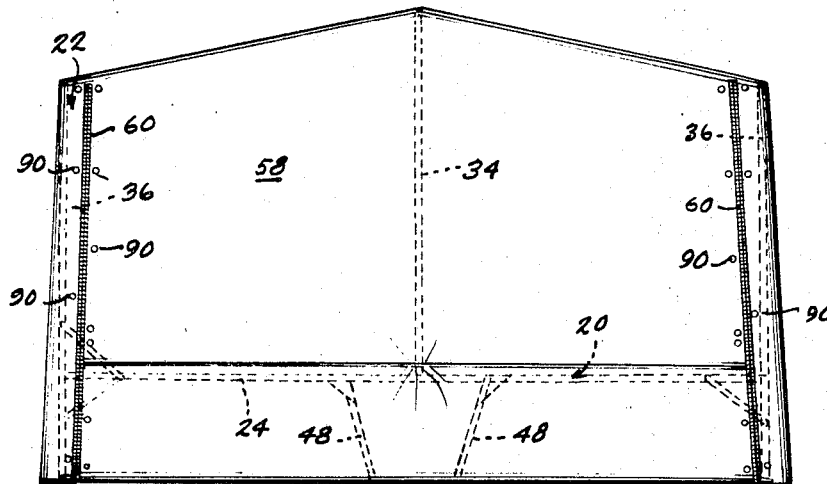
*Fig. 2*

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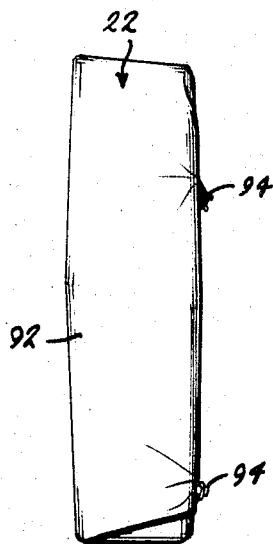
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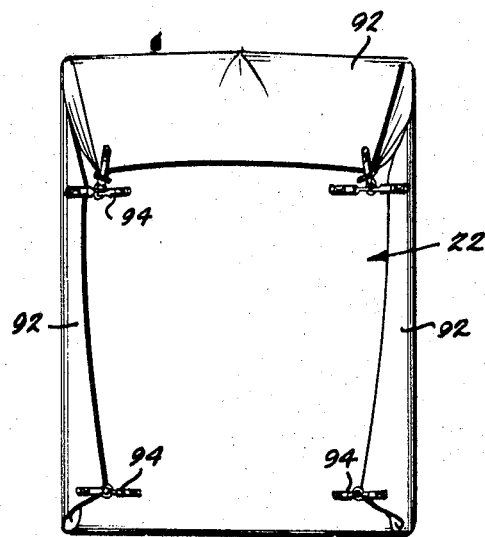
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*Fig. 3*



*Fig. 4*



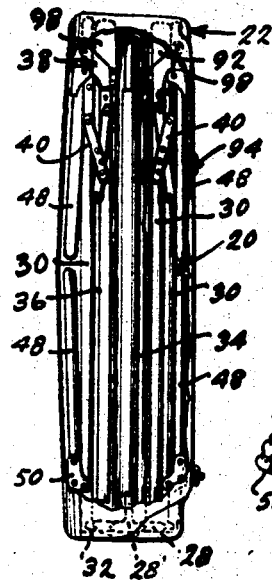
*Fig. 5*

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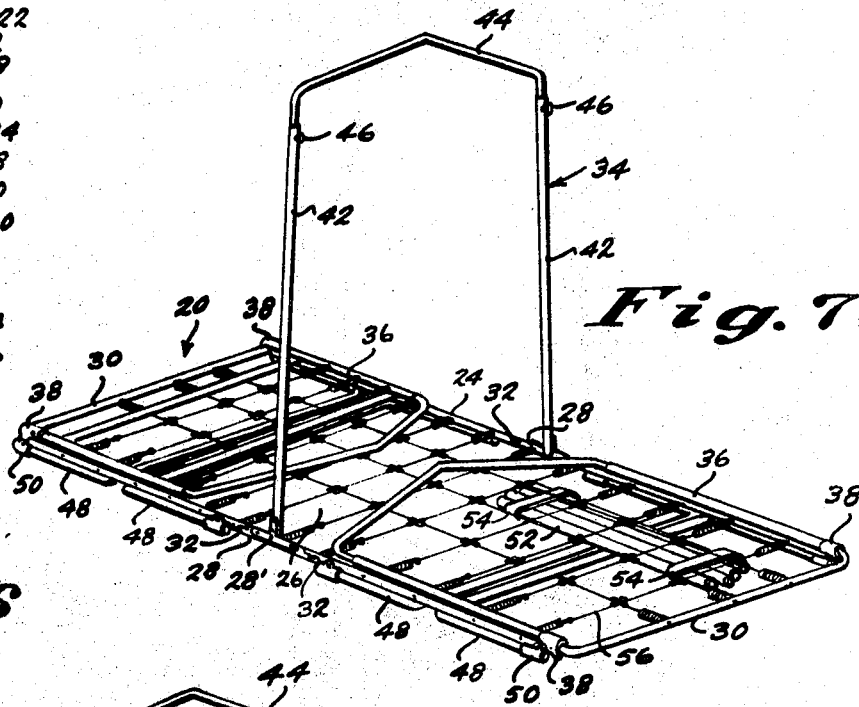
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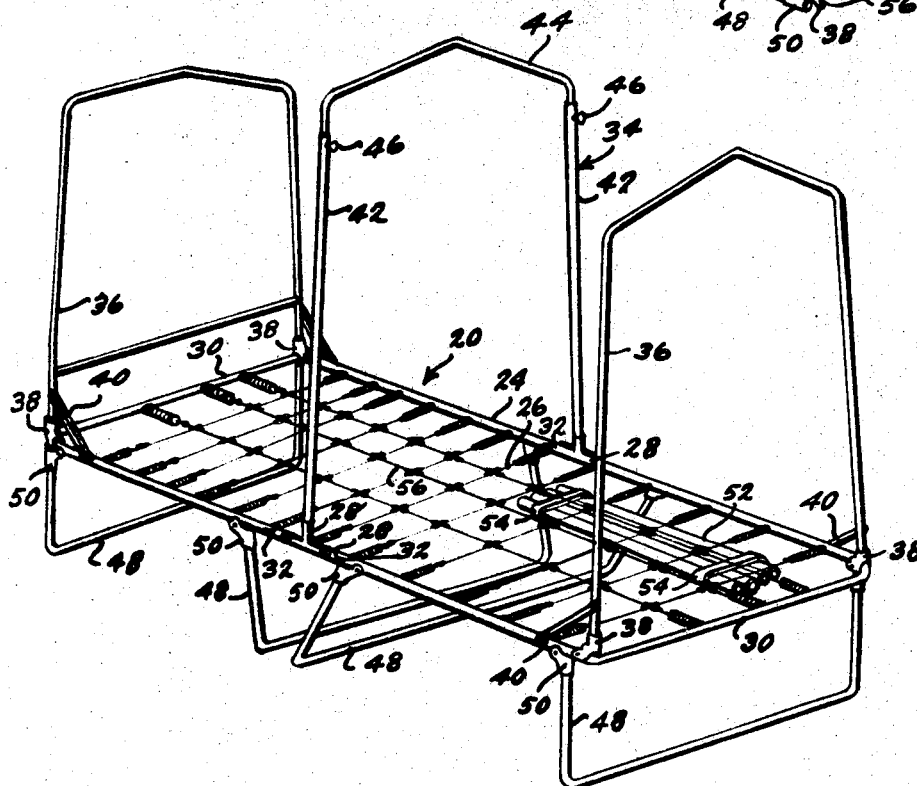
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*Fig. 6*



*Fig. 7*



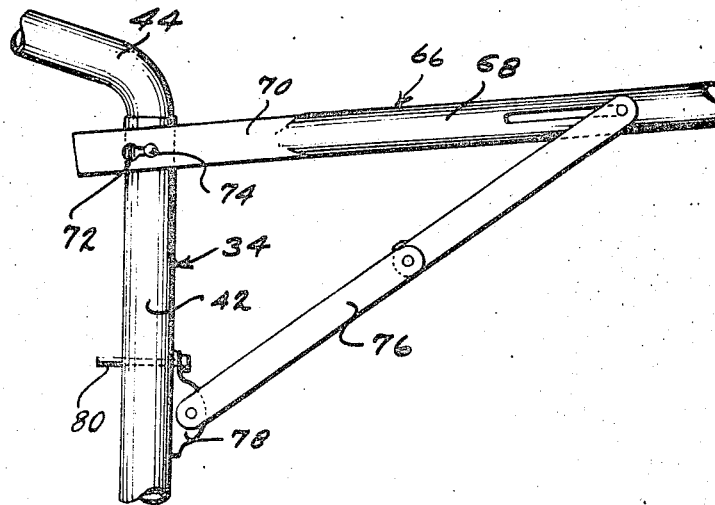
*Fig. 8*

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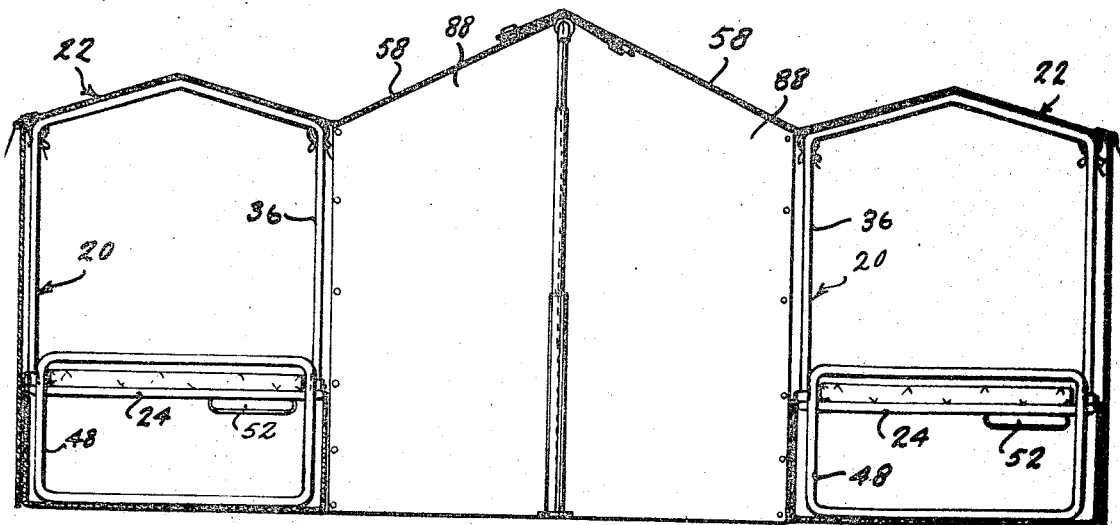
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*Fig. 9*



*Fig. 10*

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**PORTABLE CAMPING SHELTER****BACKGROUND OF THE INVENTION**

People who participate in outdoor activities such as camping, fishing and hunting often require portable equipment that affords adequate shelter and sleeping accommodations so as to enable them to remain at remote locations either overnight or for an extended period of time. To serve properly its intended purpose, equipment of this type should be designed to provide a reasonable degree of comfort for the user as well as to protect him against the forces of nature and against insects, rodents and other small animal life normally encountered in outdoor areas. In addition, it is apparent that this equipment should be suitable for readily transporting it from one place to another, and for assembling and disassembling it with minimal effort in a short period of time.

The prior art discloses equipment of this general nature which only partially responds to these requirements and which, therefore, has certain drawbacks that limit their practical application. For example, U.S. Pat. No. 1,433,457, issued Oct. 24, 1922, to Hunter, discloses a combined tent and bed structure which can be collapsed sufficiently to form a portable pack. However, this disclosed structure includes a plurality of separable support members which must be individually connected in place and disconnected each time the equipment is set up or taken down, and, in addition, a cumbersome cover member must be carefully located about its supporting frame in a rather precise fashion to assure proper sheltering; all of which subjects the user to a substantial amount of inconvenience when the equipment is used. A somewhat similar arrangement is disclosed in U.S. Pat. No. 1,729,987, issued Oct. 1, 1929, to Chittim, except that in this patent there is no indication that the equipment can be suitably collapsed in a compact manner for transporting it.

On the other hand, prior art disclosures such as U.S. Pat. No. 2,531,501, issued Nov. 28, 1950, to Cline, describe shelters which are easily transported and can be set up and taken down with comparatively little trouble; however, shelters of this sort provide very little comfort since the user, for all practical purposes, lies upon the ground and is only partially sheltered when in a reclined position.

By substantial contrast, the present invention provides a portable camping shelter which is extremely comfortable and fully covered, yet it is light weight and compact, and it is structurally arranged so that it can be set up and taken down simply by folding a minimum number of integrated elements with respect to one another.

**SUMMARY OF THE PRESENT INVENTION**

In accordance with the present invention, a support structure is provided which includes a bed frame having a center portion to which a first, upstanding cover supporting member is rigidly fixed, and two end portions pivotally associated with the center portion for movement about transverse axes between an open or flat bed-forming position and a collapsed position at which they extend in parallel, side-by-side relation to the first cover supporting member. Each of the bed end portions has a second cover supporting member pivotally mounted thereon for movement between an upstanding or open position when the bed end portions are open, and a collapsed position parallel to and alongside the longitudinal sides of the bed end portions whereby each of the second cover supporting members will be neatly and compactly sandwiched between its respective bed end portions and the first cover supporting member when the former is in its collapsed position. In addition, depending leg elements are pivotally mounted to the bed end portions for collapsing movement directly therebeneath so that they lie at the opposite side of the bed end portion with respect to the second cover supporting members whereby the leg elements are also situated in a compact fashion when the supporting frame is collapsed.

A cover member for the shelter is associated with the supporting frame in a manner which enables it to completely

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cover and protect the supporting frame in the collapsed position thereof, and the portions of the cover member which are not required for covering the collapsed supporting frame are arranged to fit nicely into available space among the elements of the supporting frame to maintain the overall compactness of the unit, the arrangement of the cover member also being such that as the various frame elements are moved to their open positions, the cover member will be carried by these elements to a position surrounding the supporting frame at the fully open position thereof.

In this surrounding position, the cover member completely encloses the supporting frame on all sides thereof so that the occupant of the shelter will be fully protected against inclement weather and pests. Moreover, the cover member is provided with side flaps that can be selectively unfastened using a zipper or the like to partially open the shelter when desired. These flaps can also be readily held at a disposition extending outwardly from the main portion of the shelter to provide additional covering over the areas on each side of the main portion of the shelter, and mosquito netting is conveniently fitted on the cover member and arranged to be selectively fastened across the opening left by the open side flaps whereby the occupant of the shelter will not be annoyed by insects when the side flaps are opened.

These and other features of the present invention are described in further detail hereinafter below in connection with the accompanying drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS.**

FIG. 1 is a perspective view of the portable camper according to the present invention at its fully open position;

FIG. 2 is a front view of the portable camper shown in FIG. 1 and illustrating one of the mosquito nets at its rolled up position;

FIG. 3 is a front view of the portable camper shown in FIG. 2 with the side flaps thereof in a closed position;

FIG. 4 is a side view of the portable camper in the fully collapsed position thereof;

FIG. 5 is an end view of the portable camper in the fully collapsed position thereof;

FIG. 6 is a side view of the portable camper corresponding to FIG. 5 and having a portion of the cover member cut away to illustrate the position of the support structure at its collapsed position;

FIG. 7 is a perspective view of the support structure at a partially opened position thereof, the cover member being deleted to better illustrate the support structure;

FIG. 8 is a perspective view of the support structure at the fully opened position thereof, the cover member being deleted to better illustrate the support structure;

FIG. 9 is a detail view illustrating the attachment of a side flap support element to the central cover supporting member; and

FIG. 10 is an end view illustrating two portable campers arranged in side-by-side relation to form an enlarged, completely enclosed shelter.

**DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring now in detail to the accompanying drawings, the portable camping shelter of the present invention comprises a support structure, generally indicated by a reference numeral 20, and a cover member 22 arranged in surrounding relation about the support structure 20 as seen in FIGS. 1, 2, and 3, which illustrate the camping shelter in an open position, and in FIGS. 4 and 5, which illustrate the camping shelter in a collapsed position.

The support structure 20 is best illustrated in FIGS. 6, 7 and 8, it being noted that the cover member 22 has been purposely deleted entirely from the latter two figures to better illustrate the various components of the support structure 20. The support structure 20 includes a bed frame 24 comprised of a center portion 26 provided with transversely opposite side



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bars 28 to which bed end portions 30 are pivotally connected for movement with respect to the bed center portion 26 about axes extending transversely through oppositely located pivot points 32 in the side bars 28.

The side bars 28 are each provided with a rigidly attached upstanding bracket 28' to which is attached one end of a center cover supporting member 34 which extends from the center bed portion 26 in perpendicular relation thereto, and each of the bed end portions 30 has a U-shaped end cover supporting member 36 connected thereto by pivot brackets 38 fixed to the end cover supporting members 36 and pivotally mounted at the longitudinal ends of bed end positions 30 whereby the end cover supporting members 36 can be pivotally moved between an open position extending perpendicularly from the bed end position 30 (FIG. 8) and a collapsed position extending in parallel relation to the longitudinal sides of the bed end portions 30 at the upper face thereof (FIG. 7), hinged members 40 being provided to maintain the end cover supporting member 36 in the open position thereof.

In the preferred embodiment of the present invention, the center cover supporting member 34 includes a pair of tubular elements 42 rigidly connected to upstanding brackets 28 and a crosspiece 44 having end segments telescopically received in the tubular elements 42 to form a U-shaped construction which can be adjusted vertically by raising or lowering the crosspiece 44 in the tubular elements 42, the crosspiece 44 being selectively held at adjusted positions thereof by pins 46 which extend through preformed matching holes in the tubular elements 42 and the crosspiece 44.

The bed frame 24 is provided with four legs 48 that are pivotally mounted beneath the bed frame 24 by pivot brackets 50 for movement between a collapsed position parallel to and adjacent the bottom face of the bed frame 24 (FIG. 7), and an open position extending in bed supporting relation from the bottom face of the bed frame 24 (FIG. 8). Also mounted at the bottom face of the bed frame 24 are a plurality of extension poles 52 which are held in place by clips or similar convenient retaining elements (not shown) carried by heavy duty fabric straps 54 fixed to the undersurface of the spring 56 of the bed frame 24, the extension poles 52 being readily detachable from the fabric strap 54 for use in supporting a portion of the cover member 22 as will be described in greater detail presently.

Referring now to the cover member 22, which is made from a suitable material such as "cotton drill" weighing 7.5 oz. per square yard, attention is directed to FIGS. 1, 2, and 3 which illustrate the camping shelter with the cover member 22 disposed about the opened support frame 20 so as to completely enclose the support frame 20 at all sides thereof. The top of the cover member 22 is supported by the center cover supporting member 34 and the two end cover supporting members 36, the center cover supporting member 34 being vertically adjusted to have a slightly greater height than the end cover supporting members 36 to provide a slope for the top surface of the cover member 22 and to prevent rain water and debris from collecting thereat. Comparing FIG. 3 with FIGS. 1 and 2, it will be seen that the portion of the cover member 22 disposed at the respective sides of the bed frame 24 includes substantially rectangular side panel sections 58 that are connected to the main portion of the cover member 22 near the top of the camping shelter and that have zipper tracks 60 located along two sides thereof for cooperation with corresponding zipper track 60' carried by the adjacent portion of the cover member 22 to permit the side panel sections 58 to be selectively fastened to the remainder of the cover member 22 to close the corresponding side face thereof (FIG. 3), or to be unfastened and either turned back over the top of the camping shelter (not shown) or displaced outwardly from the main portion of the cover member 22 and supported by the previously mentioned extension poles 52 whereby the corresponding side of the camping shelter is provided with an opening therein and with a top covering at an area immediately adjacent the corresponding side of the bed frame 24 (FIGS.

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1 and 2). It will be noted in FIGS. 1 and 2 that the main portion of the cover member 22 includes a section 62 that extends around the bottom of the bed legs 48 and up the longitudinal sides of the bed frame 24 so that the area beneath the bed frame 24 will be enclosed at all times regardless of whether the side panel sections 58 are in an open or closed position. This section 62 therefore provides an area in which many items such as guns or camping supplies may be conveniently stored without fear that they will be exposed to rain or marauding animals. Moreover, since the side panel sections 58 overlap the sides of section 62 when secured in a closed position (FIG. 3), the camping shelter is provided thereat with a substantially watertight area adjacent the sides of the bed frame 24 even though the side panel sections 58 may be selectively opened.

The extension poles 52 carried by the fabric strap 54 and used to support the side panel sections 58 are comprised of several telescopically arranged pieces, each piece except the smallest being provided with a suitable selectively engageable holding device 64 by which the several pieces of the extension poles 52 can be extended and held at a position which is determined by the desired length of the extension poles 52. Thus, the extension poles 52 can be reduced to a small length suitable for allowing them to be carried beneath the bed spring 56 without interfering with the collapsing movement of the bed end portion 30, or they can be selectively extended and arranged for vertically supporting the ends of the displaced side panel sections 58 as seen in FIGS. 1 and 2.

In addition to this endwise support of the side panel sections 58, the camping shelter is provided with two detachable supports 66 which can be mounted on the center cover supporting member 34 for outward extension therefrom to support the center of the side panel sections 58. As best seen in FIG. 9, As these detachable supports 66 include a tubular member 68 having a flattened end 70 formed with a slotted opening 72 to receive a bolt 74 secured to the side of the center cover supporting member 34, and the tubular member 68 has attached thereto one end of a hinged brace 76 which is provided at its other end with a foot element 78 that is held in place by a pin 80 manually inserted through preformed holes in the foot element 78 and the center cover supporting member 34. These detachable supports 66 are relatively small so that they can be easily placed in the camping shelter in the collapsed position thereof, and this detachable support 66 can be easily mounted on the center cover supporting member 34 by placing the slotted opening 72 over the screw 74 and then inserting the pin 80 through the foot element 78 and the center cover supporting member 34 to anchor the detachable support 66 thereat. Because the detachable supports 66 are not unduly lengthy, they can be conveniently carried on clips attached to the longitudinal sides of the bed end portions 30 (not shown).

The camping shelter is also provided at each side thereof with mosquito net sections 82 having a size and shape generally corresponding to the opening in the cover member 22 when the side panel sections 58 are unfastened and displaced, the net section 82 being sewn at one side thereof to the cover member 22 along a line generally defined by the connecting point of the side panel sections 58, respectively. The remaining three sides of the mosquito net sections 82 are provided with a zipper track 84 for selective attachment to a corresponding zipper track 84' provided on the cover member 22. The mosquito net sections 82 are normally rolled up and held by tie cords 86 (FIG. 2) sewn or otherwise secured to the cover member 22 at the top of the side openings therein. However, when the side panel section 58 are displaced and the occupant of the camping shelter wishes to be protected against insects or the like, the tie cords 86 are loosened and the net section 82 allowed to roll downwardly whereupon they may be secured in place across the side openings by fastening the zipper tracks 84, 84'.

When the side panel sections 58 are disposed in their outwardly displaced position as seen in FIG. 1, it may be desirable to have the area located therebeneath provided with side protection as well as overhead protection, and for this purpose

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the camping shelter is provided with four attachable flaps 88 that can be selectively secured in place to depend from the extending side edges of the side panel sections 58. The attachable flaps 88, only one of which is illustrated in FIG. 1, may be attached to the main portion of the cover member 22 and to the side panel sections 58 by any suitable connections such as snaps 90 sewn to the respective parts, some of these snaps 90 being illustrated in FIG. 3. When not in use, the attachable flaps 88 may be folded up and conveniently stored between the bed spring 56 and the mattress 98 carried thereby.

In addition, the cover member 22 is provided with a cover flap 92 sewn along the bottom edge of one end thereof as seen in FIG. 1, this cover flap 92 serving to provide a neat and protective cover for the camping shelter when it is fully collapsed (FIGS. 2 and 3). For purposes of illustration, this cover flap 92 is shown extending outwardly from the camping shelter in FIG. 1, however, it will be understood that it is normally folded beneath the camping structure in the open position thereof. In this collapsed position of the camping shelter, the cover flap 92 is held tightly in place by cooperating hook devices 94 sewn to the cover flaps 94 and cover member 22, respectively (FIG. 5).

To understand the steps by which the camping shelter is opened, attention is directed to FIGS. 6, 7 and 8. In FIG. 6, the camping shelter is shown in its fully collapsed position, and after the hook devices 94 have been released, the bed end portions 30 are pivoted about pivot points 32 so that they will move from a collapsed position extending in parallel relation to the center cover supporting member 34 to an open position forming a generally flat bed surface with bed center portion 26 (FIG. 7). Next, the end cover supporting members 36 are pivoted from a collapsed position extending in parallel relation to the bed end portions 30 to an open position extending in perpendicular relation thereto, and the bed legs 48 are likewise pivoted to the open bed supporting position thereof (FIG. 8). It will be understood that during these opening movements of the various components of the camping shelter, the cover member 22 will be carried by such components to a disposition completely enclosing the support structure 20, and at this point the camping shelter will assume a position as shown in FIG. 3 at which it is completely ready for use with nothing further being necessary except, perhaps, raising the crosspiece 44 of the center cover supporting member 34 to provide the top of the cover member 22 with a slope as previously described.

To collapse the camping shelter, the components of the support structure 20 are pivoted back to their collapsed position in reverse order to that previously described, and the cover member 22 is simply tucked into the available space between the components as they are collapsed. Also, it will be noted that the relatively thin mattress 98, made of foam rubber or the like, will fold at its midpoint and be carried between collapsed bed end portions 30 (FIG. 6).

Thus, it will be seen that the camping structure of the present invention may be quite easily opened or collapsed in a matter of just a few minutes, and it is not necessary to attach or detach a single element.

Moreover, the user of this camping shelter has a wide variety of options available to him in changing the position of the camping shelter in that he can open either or both of the side panel sections 58 and place them over the top of the camping shelter or support them in an outwardly displaced position as shown in FIGS. 1 and 2. The flaps 88 may then be added, if desired, and the mosquito net sections 82 may be zipped into place if needed. It will also be noted that while conventional guy lines 96 are illustrated in FIGS. 1 and 2, they are not required to steady the camping shelter since it rests on a firm base provided by the bed legs 48, but they may be desirable when the camping shelter is exposed to unusually high winds.

Finally, as illustrated in FIG. 10, two camping shelters may be placed together in side-by-side relationship with the adjacent side panel sections 58 supported by the same extension

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poles 52 and with the attachable flaps 88 added to provide a very large enclosure which is very inhabitable and private.

I claim:

1. A portable camping shelter comprising an integrally formed support structure including a bed frame having a relatively short center portion to which a transversely disposed first cover supporting member is secured for extension in perpendicular relation therefrom, and having two relatively long end portions pivotally connected to said center portion for movement about transverse axes between a collapsed position extending in parallel relation to said first cover supporting member and an open position forming a generally flat bed surface with said center portion, said bed end portions each having a second cover supporting member pivotally connected thereto for movement between a collapsed position extending in parallel relation to said bed end portions and an open position extending in perpendicular relation to said bed end portions, and cover means attached to said support structure and arranged to surround said support structure when said bed end portions and said second cover supporting members are collapsed and to extend in covering relation over said first and second cover supporting members when the latter are disposed in the open position thereof.

2. A portable camping shelter as defined in claim 1 and further characterized in that said second cover supporting members are pivotally connected to said bed end portions adjacent the outermost ends thereof and are arranged to collapse to a position adjacent the upper faces of said bed end portions, respectively, and in that bed leg elements are pivotally connected to said bed end portions for movement between a collapsed position parallel to and adjacent the opposite face of said bed end portions and an open position extending in bed supporting relation from said opposite face.

3. A portable camping shelter as defined in claim 1 and further characterized in that said first and second cover supporting members have U-shaped configurations and are connected at the open ends thereof to said bed center portion and said bed end portions, respectively, so as to lie in parallel, transverse planes when said second cover supporting members are at said open position thereof.

4. A portable camping shelter as defined in claim 3 and further characterized in that said first cover supporting member includes a pair of tubular elements extending respectively from the longitudinal side rails of said bed center portion, and a crosspiece having end segments telescopically received in said tubular elements and selectively held thereat whereby the height of said first cover supporting member with respect to said bed center portion can be adjusted.

5. A portable camping shelter as defined in claim 1 and further characterized in that said cover means completely encloses said support structure when said bed end portions and said second cover supporting members are at said open position thereof.

6. A portable camping shelter as defined in claim 5 and further characterized in that the portion of said cover means disposed at the respective sides of said bed frame in the open position thereof includes substantially rectangular panel sections that have fastener means located along at least two sides thereof to permit said panel section to be selectively unfastened thereat and displaced to provide openings at the sides of said shelter.

7. A portable camping shelter as defined in claim 6 and further characterized in that one side of each of said panel sections is connected to the main portion of cover means near the top of said shelter whereby said panel section may be unfastened and displaced outwardly from the main portion of said cover means to provide covering at an area adjacent the sides of said bed frame.

8. A portable camping shelter as defined in claim 7 and further characterized in that said cover means is provided with sections of netting material having a size and shape generally corresponding to said openings formed by displacing said panel sections, one side of each of said netting sections being



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secured to said cover means along a line generally defined by the said connection of said one side of said panel sections, respectively, and the other three sides of each of said netting sections being provided with fastener means permitting said netting sections to be selectively fastened to said cover means in covering relation about said openings in said shelter formed when said panel sections are displaced.

9. A portable camping shelter comprising a collapsible support structure including a bed frame and integrally connected

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cover supporting means movable to a position extending generally upwardly from said bed frame in the uncollapsed position of said support structure, and cover means associated with said support structure so as to enclose completely said support structure in the collapsed position thereof and to be carried by said movement of said cover supporting means to a disposition about said cover supporting means and completely enclosing said support structure.

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**United States Patent** [19][11] **3,913,968****Luppens**[45] **Oct. 21, 1975**[54] **COLLAPSIBLE CAMPER**

2,956,573 10/1960 Brown..... 135/5 A

[75] Inventor: **Patrick M. Luppens, O'Fallon, Ill.****FOREIGN PATENTS OR APPLICATIONS**[73] Assignee: **Robert B. Schoolcraft, St. Petersburg, Fla.**

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[22] Filed: **May 17, 1974**[21] Appl. No.: **470,958***Primary Examiner*—Robert J. Spar*Assistant Examiner*—Gary Auton*Attorney, Agent, or Firm*—Stein & Orman[52] U.S. Cl. .... **296/23 R; 135/4 A; 135/5 A; 224/30 R; 296/136**[51] Int. Cl.<sup>2</sup> ..... **B60P 3/32**

[58] Field of Search ..... 296/23 R, 78.1, 136; 135/1 A, 3 A, 4 A, 5 A, 5 AT; 224/33 R, 33 A, 30 R, 31, 42.1 E, 42.1 R, 42.1 F

**[57] ABSTRACT**

A collapsible camper comprising a collapsible support frame including a front and rear assembly specifically configured to support a tent covering in combination with a bicycle frame.

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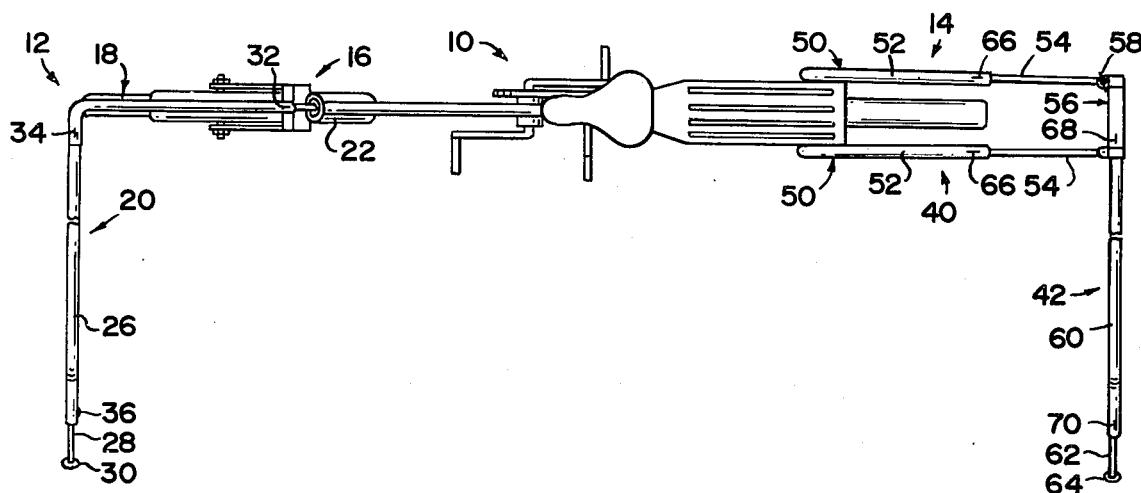
**14 Claims, 8 Drawing Figures**

FIG. 1

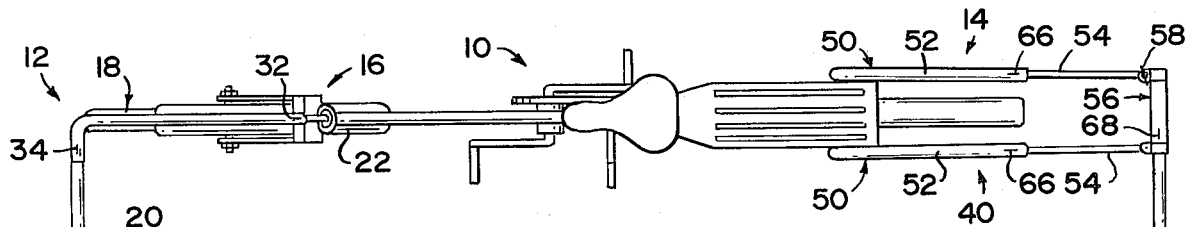
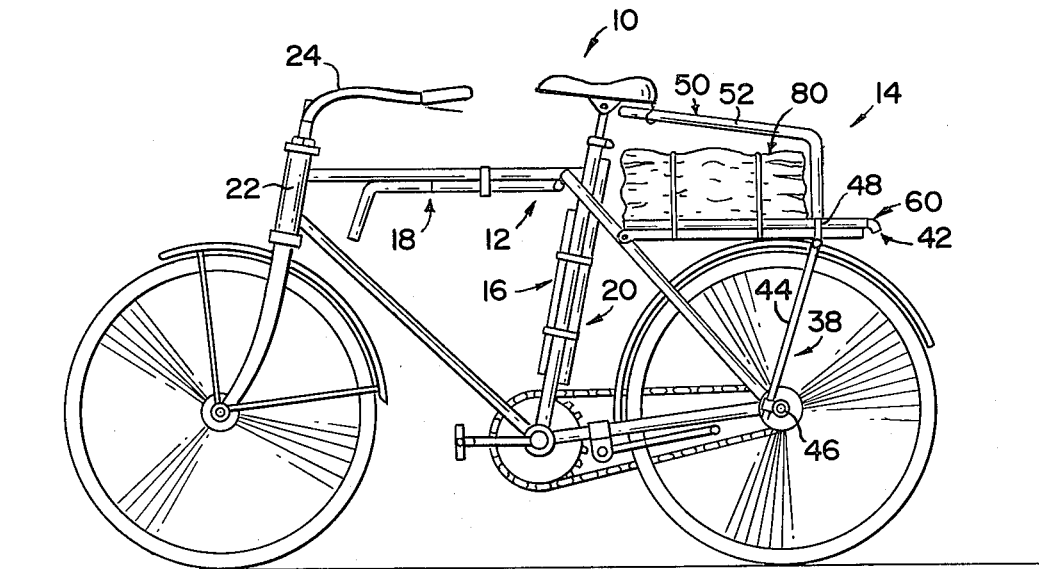
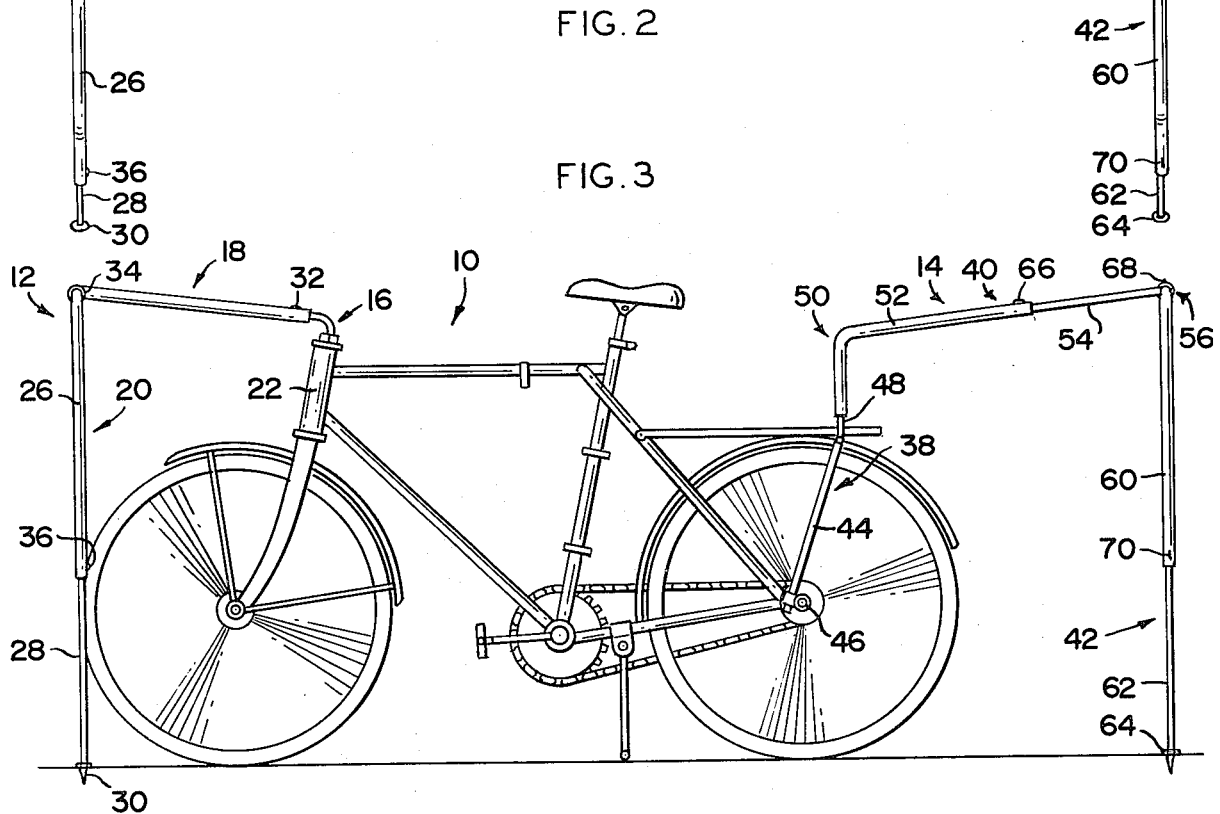


FIG. 2

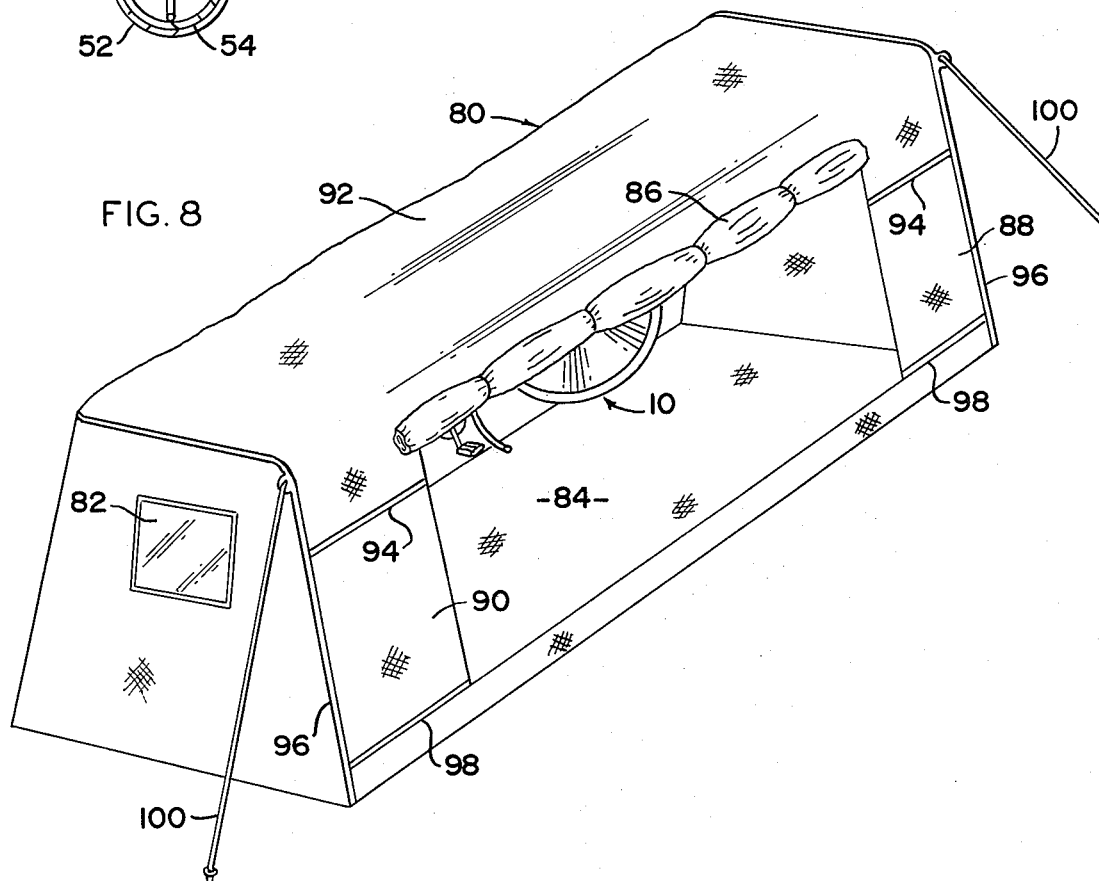
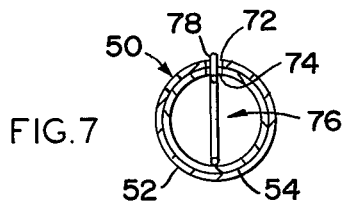
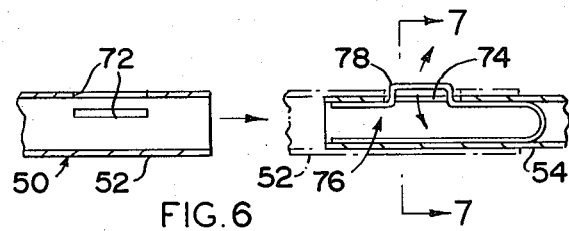
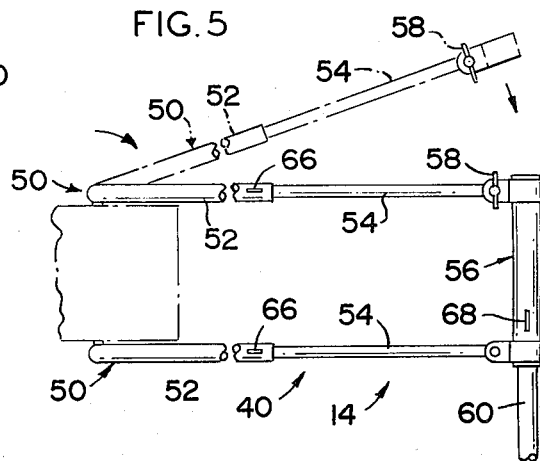
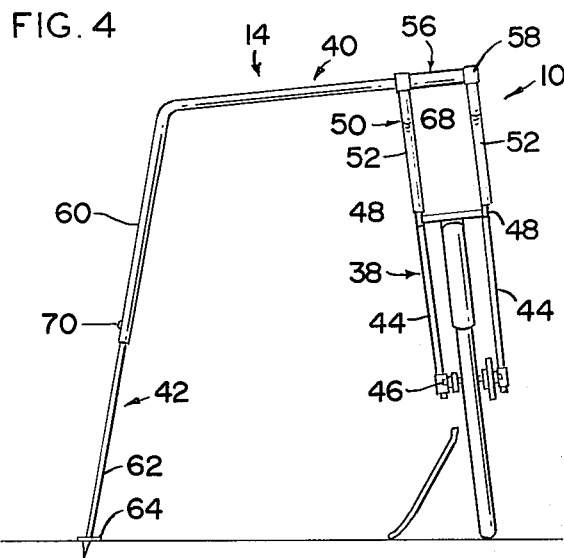


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**COLLAPSIBLE CAMPER****BACKGROUND OF THE INVENTION****1. Field of the Invention**

A collapsible camper specifically configured to 5  
mount upon a bicycle frame.

**2. Description of the Prior Art**

In recent years, interest in nature and the outdoors 10  
has vastly increased. Attending this increased interest is a significant increase in outdoor camping. Many persons and families find camping a particularly economical way to vacation. Others enjoy the travel aspect of camping. Still others find camping an aid to fishing, hunting and other outdoor activity.

This great increase in camping has caused a tremendous need for camping equipment of all types. Camping shelters, more easily called "campers" have ranged from a simple canvas tent to elaborate self-contained vans with all the comforts of home. The most popular campers, however, are those which offer the convenience of mobility without the need to assemble the shelter to any great extent after reaching the campsite. Thus, trailers and vans mounted on quarter or half-ton pickup trucks, are most popular. They are popular because they do not hamper the driver of the vehicle and they are quickly assembled if at all required.

With trailers, a second vehicle is obviously required, and such causes increased license fees and tolls, adds driving hazards and frequently limits the area of accessibility to the car-trailer combination.

With truck mounted vans, the expense involved for the camper and the truck itself is too much for the occasional camper. Attempts have been made to mount camp shelters on an automobile to overcome the above undesirable attributes of trailers or van type campers, but with only moderate success. For example, U.S. Pat. Nos. 3,097,013 and 3,115,362 show vehicle mounted campers but each is difficult to assemble and each adds a rather extensive length to the original vehicle structure, hampering the driver's visibility and adversely affecting the roadability of the altered vehicle. U.S. Pat. Nos. 1,984,681 and 2,561,168 are other variations, though earlier, which have not been accepted by the consumer probably due to their complicated structure or assembly requirements once the campsite has been reached.

With the increase in bicycle riding and camping there is a need for a tent-camper configured to be mounted on the bicycle frame without interfering with the normal bicycle operation. None of the prior art described fulfills this requirement. Thus, there is a need for a tent frame configured to provide a camper which can be mounted on a bicycle frame.

**SUMMARY OF THE INVENTION**

The present invention relates to a collapsible camper specifically configured to be carried on a bicycle frame. More particularly, the collapsible camper comprises a collapsible support frame including a front and rear assembly configured to support a tent covering in combination with the bicycle frame.

The front assembly comprises a forward attachment means, forward interconnect means and adjustable forward support means. The forward attachment means is fixedly attached to the fork and handle bar assembly when in the erected position. The forward interconnect means comprises a substantially L-shaped member ex-

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tending forwardly along the longitudinal axis of the bicycle frame and outwardly to one side thereof to interconnect the forward attachment means and the forward support means. The adjustable forward support means comprises an upper, substantially L-shaped element and a lower element including a forward securing means formed on the lower portion thereof to secure the front assembly to the ground or other supporting surface when fully erected.

The front assembly further includes a forward attachment lock means, a forward interconnect lock means and a forward support lock means. The forward attachment lock means the forward attachment means to the forward interconnect means. The forward interconnect lock means fixes the rotational position of the forward interconnect means relative to the forward support means when operatively assembled, while the forward support lock means fixes the longitudinal extension of the lower support element relative to the upper support element when in the erected position.

The rear assembly comprises a rear attachment means, rear interconnect means and adjustable rear support means. The rear attachment means may comprise a pair of rear struts extending upwardly from the rear axle or simply an extension of existing struts. The rear interconnect means comprises a pair of extendable substantially L-shaped members pivotally connected to the rear attachment means strut extensions. The L-shaped members are substantially parallel when erected and extend rearwardly along the longitudinal axis of the bike frame and are coupled at the rearward end to one another to maintain the fixed base parallel relationship by coupling means extending therebetween. The adjustable rear support means comprises an upper substantially L-shaped element pivotally attachable to the coupling means and a lower element including a rear securing means formed on the lower portion thereof to secure the rear assembly to the ground or other supporting surface when in fully erected position. The rear assembly further includes a rear interconnect lock means and a rear support lock means. The rear interconnect lock means fixes the rotation and longitudinal position of the coupling means relative to the rear support means when operatively assembled. The rear support lock means fixes the longitudinal position of the upper element relative to the lower element when in the erected position.

The tent covering may comprise a canvas-like fabric or other suitable material for protecting the tent occupants from the elements.

To set up the camper, the tent covering is placed on the ground. Then the bicycle is stood on its kick-stand with the rear wheel on the flooring of the tent covering. The handle bars are then removed permitting attachment of the forward attaching means to the fork. Of course, with suitable coupling means the forward attachment means may be fixed directly to the handle bar assembly itself. The forward interconnect means is then operatively attached to the forward attachment means and the forward support means is attached to and locked in operative position relative to the forward interconnect means. The lower element is then extended downwardly to the desired height at which time the forward support lock means is operative to secure the front assembly in position. The rear assembly is similarly positioned by pivoting the interconnect members to extend rearwardly relative to the bike frame and in-

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terconnected by the coupling means to maintain their spaced parallel relationship relative to each other. The first and second interconnect members are extended rearwardly relative to operative position by the rear interlock means. The rear support means is then operatively attached to the rear interconnect means and locked in place by the rear interconnect lock means. The lower rear support element is then extended downwardly relative to the upper support element to the desired position and locked in place by the rear support lock means. The frame thus assembled, the tent covering is then secured thereto to complete the assembly of the collapsible camper.

The invention accordingly comprises the features of construction, combination of elements and arrangement of parts which will exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

#### BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIG. 1 is a side view of the camper in the transit position mounted on a bicycle.

FIG. 2 is a top view of the camper in the erected position.

FIG. 3 is a side view of the camper in the erected position.

FIG. 4 is a rear view of the camper in the erected position.

FIG. 5 is a top detailed view of the rear assembly.

FIG. 6 is a detailed cross-sectional side view of the various lock means.

FIG. 7 is a cross-sectional end view of the lock means taken along line 7—7 of FIG. 6.

FIG. 8 is a perspective view of the camper in the erected position.

Similar reference characters refer to similar parts throughout the several views of the drawings.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As best shown in FIGS. 1 through 4, the present invention relates to a collapsible camper specifically configured to be conveniently carried on a bicycle frame generally indicated as 10 during travel which comprises a collapsible support frame to support a tent covering, best shown in FIG. 8, on a bicycle frame 10. As best shown in FIGS. 2 through 4, the collapsible support frame includes a front and rear assembly 12 and 14 respectively configured to support the tent covering as more fully described hereinafter.

As best shown in FIGS. 2 and 3, the front assembly 12 comprises a forward attachment means generally indicated as 16, forward interconnect means generally indicated as 18 and forward support means generally indicated as 20. The forward attachment means 16 comprises a substantially L-shaped member configured to mount within fork 22 of frame 10 as best shown in FIGS. 2 and 3. Of course, with other attachment means the forward attachment means 16 may be coupled directly to the handle bar assembly 24 shown in FIG. 1. The forward interconnect means 18 comprises a substantially L-shaped member configured to cooperatively engage the forward portion of forward attach-

ment means 16 as best shown in FIGS. 2 and 3. The forward support means comprises an upper and lower element 26 and 28 respectively. Forward upper element 26 comprises a substantially L-shaped member configured to cooperatively engage forward interconnect means 18 and lower forward element 28. Formed on the lower portion of forward lower element 28 is forward securing means 30 to secure forward assembly 12 to the ground or other supporting surface.

In addition, forward assembly 18 includes first, second and third forward lock means generally indicated as 32, 34 and 36 respectively to operatively interlock forward attachment means 16, forward interconnect means 18 and forward support means 20. The forward lock means 32, 34 and 36 will be described more fully hereinafter with reference to FIGS. 6 and 7.

As best shown in FIGS. 2 through 5, the rear assembly 14 comprises a rearward attachment means generally indicated as 38, rearward interconnect means generally indicated as 40 and rearward support means generally indicated as 42. The rearward attachment means 38 comprises a pair of struts 44 attached to the lower end to rear axle 46 and strut extender 48 extending upwardly to engage rearward interconnect means 40. Rearward interconnect means 40 comprises a pair of members 50 attached to opposite sides of the bike frame 10 as best shown in FIG. 2. Each member 50 comprises first substantially L-shaped element 52 disposed to engage the corresponding strut extension 48 and second element 54 telescopically attached to the first element 52. The rearward interconnect means further includes a coupling means 56 pivotally attached to one of the second elements 54 and removably attached to the opposite second element 54 by the fastening means 58 to hold the rearward members 50 in substantially spaced parallel relationship relative to each other when operatively assembled. The rear support means 42 includes upper and lower elements 60 and 62 respectively. Formed on the lower portion of lower rearward element 62 is a rear securing means 64 for securing the rear assembly 14 to the ground or other supporting surface. As best shown in FIG. 2, the forward and rearward support means 20 and 42 are substantially parallel in spaced relationship relative to one another when in the assembled position.

Rear assembly 14 further includes first, second and third rearward lock means 66, 68 and 70 respectively to operatively lock rearward interconnect means 40 and rearward support means 42 in operative relationship relative to one another. The specific details of first, second and third rearward lock means 66, 68 and 70 respectively are discussed with reference to FIGS. 6 and 7 hereinafter.

As best shown in FIGS. 6 and 7, each of the lock means referred to herein above comprises an aperture 72 formed in the outer or larger element or member and a corresponding aperture 74 formed in the inner or smaller element or member wherein the inner or smaller member has an outwardly biased push button detent lock element 76 having lock member 78 extended through first aperture 74 to move into and out of locking engagement with aperture 72 when operatively assembled. Fixing the length of the extension as desired.

As shown in FIG. 8, the tent covering 80 may comprise canvas or other suitable weatherproof fabric to protect the occupant from the element when the



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camper is in the erected position. As shown, each end of the canvas cover may include screen window 82. The tent covering also includes a floor 84 and door flap 86 to completely enclose the interior of the camper. Side panels 88 and 90 are attached to the main panel 92 by zippers or snap fasteners along edges 94, 96 and 98. In addition, tie downs 100 may be provided to provide additional securing of the camper.

As best shown in FIG. 1, the front and rear assemblies 12 and 14 respectively are specifically configured to attach to the bicycle frame 10 in the carry or travel position without interfering with the normal operation of the bicycle 10.

To set up the camper, the tent covering 80 is placed on the ground. Then the bicycle is stood on its kickstand with the rear wheel on the flooring 84. The handle bars 24 are then removed permitting attachment of the forward attaching means 16 to the fork. Of course, with suitable coupling means, the forward attachment means 16 may be fixed directly to the handle bar assembly 24 itself. The forward interconnect means 18 is then operatively attached to the forward attachment means 16 by lock means 32 and the forward support means 20 is attached to and locked in operative position relative to the forward interconnect means 18 by lock means 34. The lower element 28 is then extended downwardly to the desired height and locked by lock means 36. The front assembly 12 is then secured to the ground by securing means 30. The rear assembly 14 is similarly positioned by pivoting the rearward interconnect members 50 to extend rearwardly relative to the bike frame and interconnected by the coupling means 56 to maintain their spaced parallel relationship relative to each other. The interconnect members 50 are extended rearwardly and locked in operative position by the first lock means 66. The rear support means 42 is then operatively attached to the rear interconnect means 40 and locked in place by the second rearward lock means 68. The lower rear support element 62 is then extended downwardly relative to the upper support element 60 to the desired position and locked in place by the third rearward lock means 70. The frame thus assembled, the tent covering 80 is then secured thereto to complete the assembly of the collapsible camper.

It will thus be seen that the objects made apparent from the preceding description are efficiently attained, and since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Now that the invention has been described, What is claimed is:

1. A collapsible camper configured to support a tent covering on a bicycle frame, said collapsible camper comprising a tent covering and a front and rear assembly, said front assembly including a forward attachment means, forward interconnect means and forward support means, and said rear assembly including a rearward attachment means, rearward interconnect means and rearward support means; said forward attachment

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means removably coupled to the forward portion of the bicycle frame and extending forward therefrom, said forward interconnect means attached at one end to said forward attachment means and extending forwardly therefrom and to said forward support means at its opposite end to fixedly interconnect said forward attachment means and said forward support means, said forward support means extending laterally outwardly and then downward from said forward interconnect means to engage the ground spaced to one side of said vehicle when operatively assembled; the rearward attachment means is attached to the rear portion of the bicycle frame, said rearward interconnect means attached at one end to said rearward attachment means and extending rearwardly therefrom and to said rearward support means at its opposite end to removably interconnect said rearward attachment means and said rearward support means, said rearward support means extending laterally outwardly and then downward from said rearward interconnect means to engage the group spaced to the same one side of said vehicle when operatively assembled, said forward and rearward support means being in substantially parallel relationship relative to each other when operatively assembled such that said forward and rearward assemblies and the bicycle frame cooperatively support the tent covering to form a collapsible camper.

2. The camper of claim 15 further including a first forward lock means to detachably interlock said forward attachment means and said forward interconnect means when operatively assembled.

3. The camper of claim 2 further including a second lock means to detachably interlock said forward interconnect means and said forward support means when operatively assembled.

4. The camper of claim 3 wherein said forward support means comprises an upper and lower element movably attached to each other.

5. The camper of claim 4 further including a third forward lock means to operatively interlock said upper and lower elements when operatively assembled.

6. The camper of claim 1 wherein said rearward interconnect means comprises at least one elongated member extending rearwardly of the bicycle when operatively assembled.

7. The camper of claim 6 wherein said rearward interconnect means comprises a pair of elongated members arranged in substantially parallel relationship to each other when operatively assembled.

8. The camper of claim 7 further including coupling means to operatively interconnect said pair of elongated members when operatively assembled.

9. The camper of claim 8 further including a second rearward lock means to detachably interlock said rearward interconnect means and said rearward support means when operatively assembled.

10. The camper of claim 7 wherein each said elongated member comprises a first and second element movably arranged relative to each other.

11. The camper of claim 10 further including a first rearward lock means to operatively interlock said corresponding first and second elements of said elongated members when operatively assembled.

12. The camper of claim 1 wherein said rearward support means comprises an upper and lower element movably attached to each other.

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**13.** The camper of claim **12** further including a third rearward lock means to operatively interlock said upper elements when operatively assembled.

**14.** The camper of claim **1** wherein said forward and

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rearward support means each includes securing means formed on the lower portion thereof to secure said tent to the ground when operatively assembled.

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UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,913,968 Dated October 21, 1975

Inventor(s) Patrick M. Luppens

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 13, after "means", first occurrence insert  
-- locks --.

Column 4, line 67, delete "element" and insert -- elements --.

Column 6, line 21, delete "group" and insert -- ground --.  
line 29, delete "15" and insert -- 1 --.

**Signed and Sealed this**

**Tenth Day of August 1976**

[SEAL]

*Attest:*

**RUTH C. MASON**  
*Attesting Officer*

**C. MARSHALL DANN**  
*Commissioner of Patents and Trademarks*

[11] **4,114,633**

[45] **Sep. 19, 1978**

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- [22] Filed: Nov. 15, 1976

- "Now You Can Pedal Your Tent", Washington Post Newspaper, Aug. 1977.

- [30] Foreign Application Priority Data

- Nov. 20, 1975 [FR] France ..... 75 35514

- [51] **Int. Cl.<sup>2</sup>** ..... **A45F 1/00**

- [52] U.S. Cl. .... 135/1 A; 150/52 K;  
296/136

- [58] **Field of Search** ..... 135/1 R, 1 A, 3 A, 4 A,  
135/5 A, 7; 296/23 A, 136; 150/52 K

- [56]
- References Cited**

- Primary Examiner*—Price C. Faw, Jr.

- Assistant Examiner*—Conrad L. Berman

- Attorney, Agent, or Firm—Michael J. Striker**

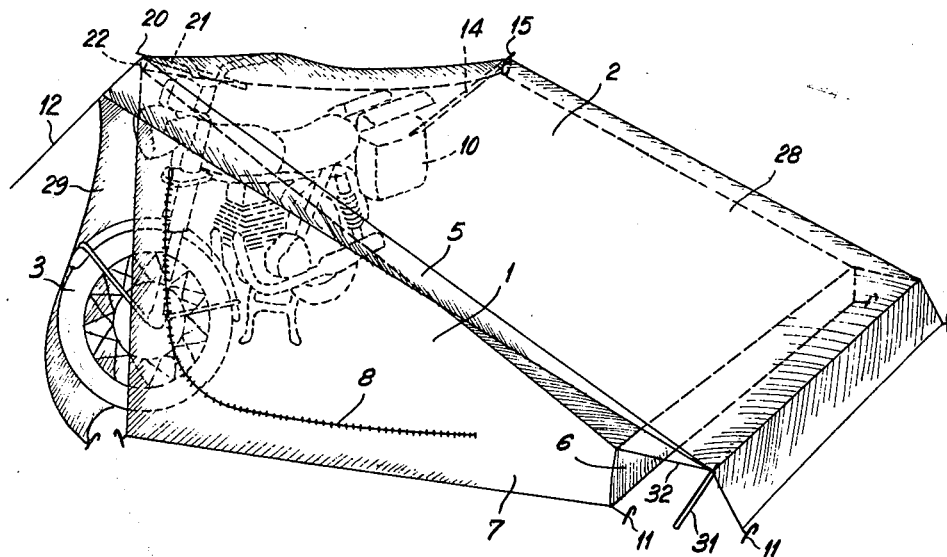
- [57]
- ABSTRACT**

A tent which serves both as a sleeping unit and as a shelter for a two-wheeled vehicle such as a bicycle or motor-cycle is designed in the form of a penthouse mounted against one of the sides of the vehicle. A vertical wall extends alongside the vehicle and the double roof of the tent is designed to cover the vehicle so as to form an awning on the other side of this latter or to extend downwards along the side opposite to the tent.

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### 12 Claims, 9 Drawing Figures



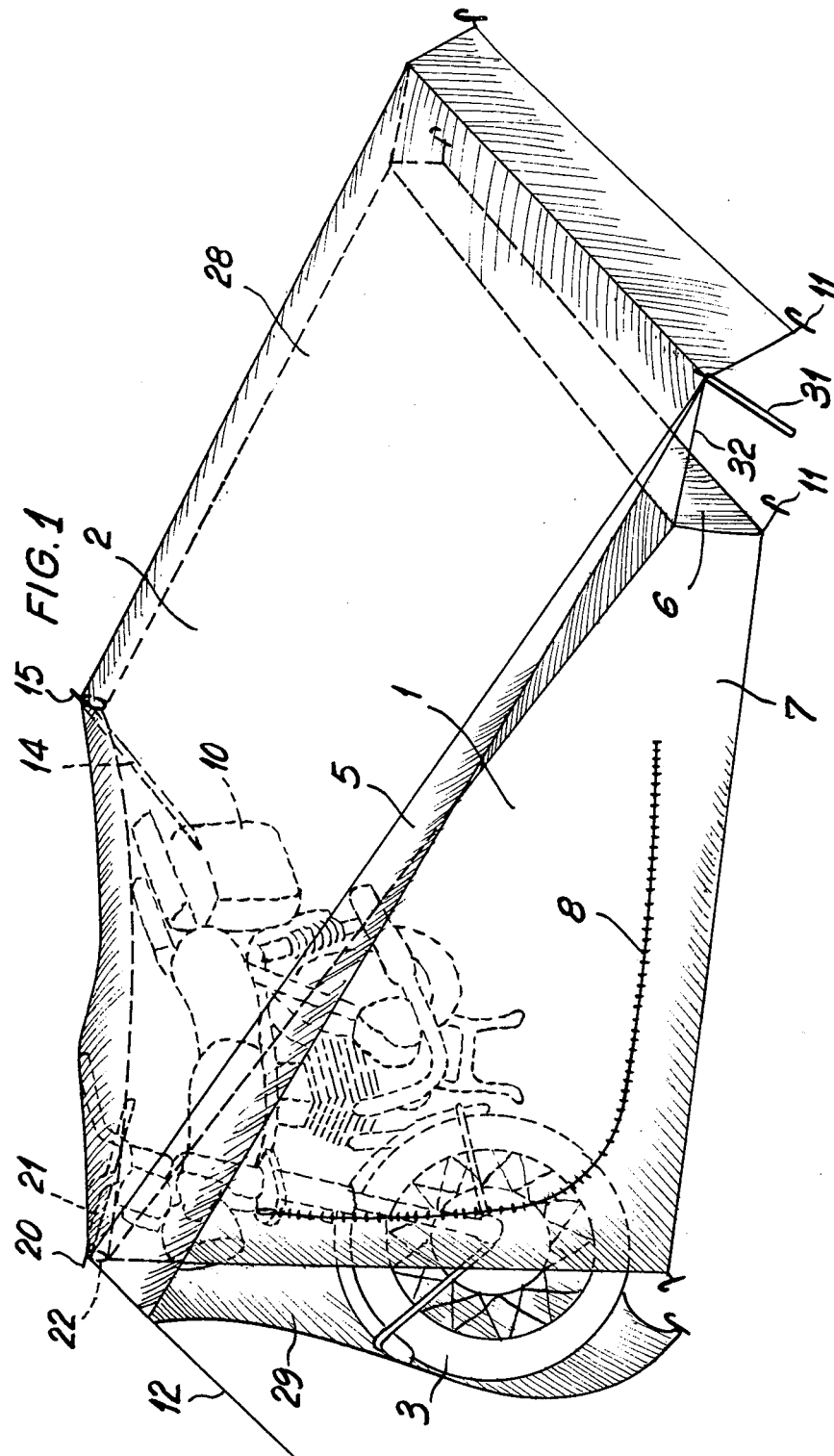


FIG. 2

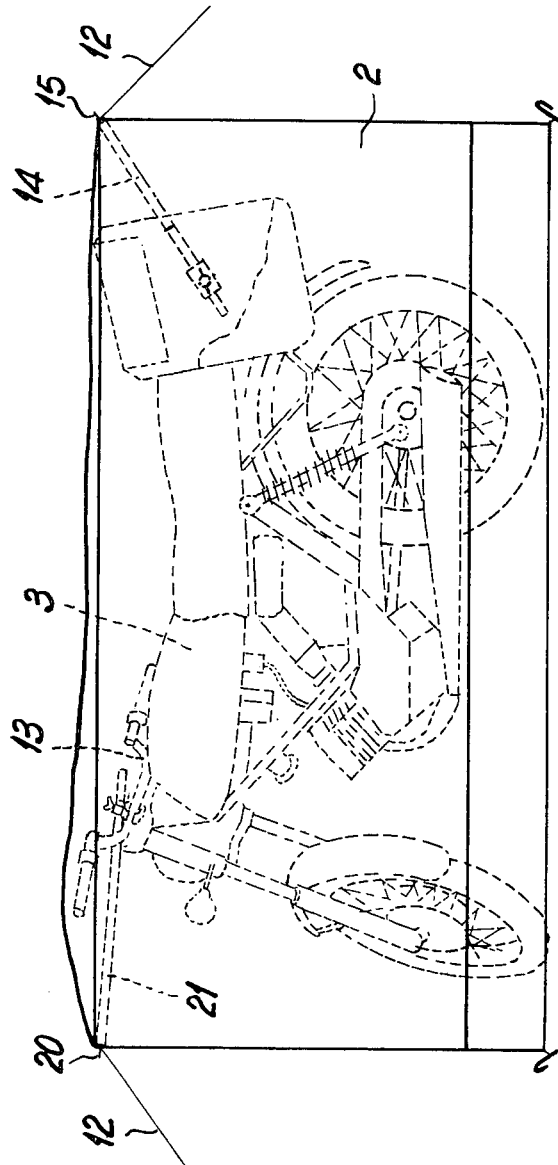


FIG. 3

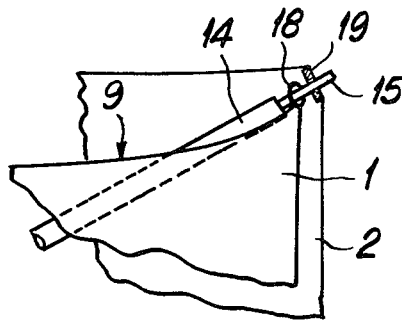


FIG. 4

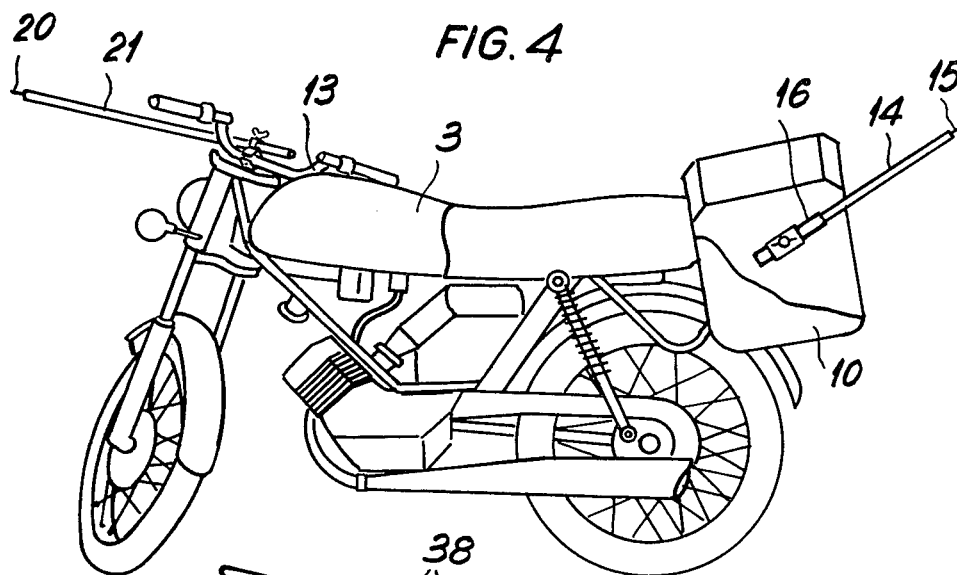
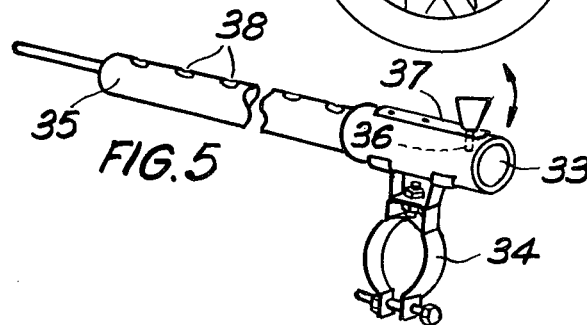
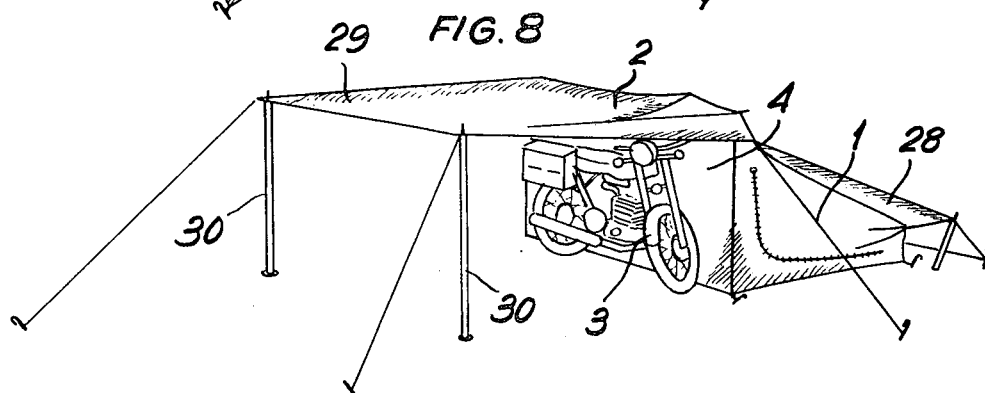
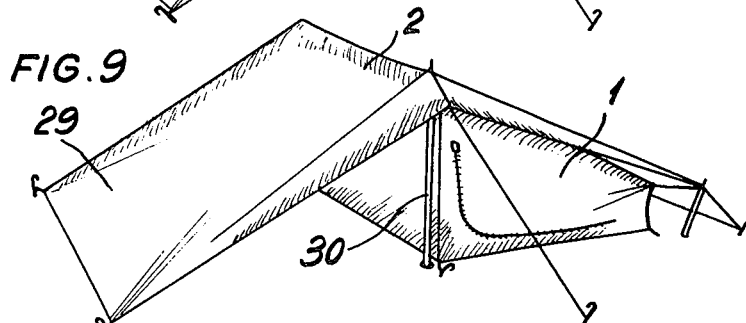
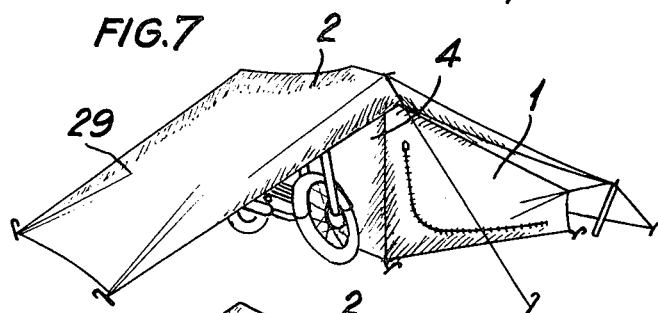
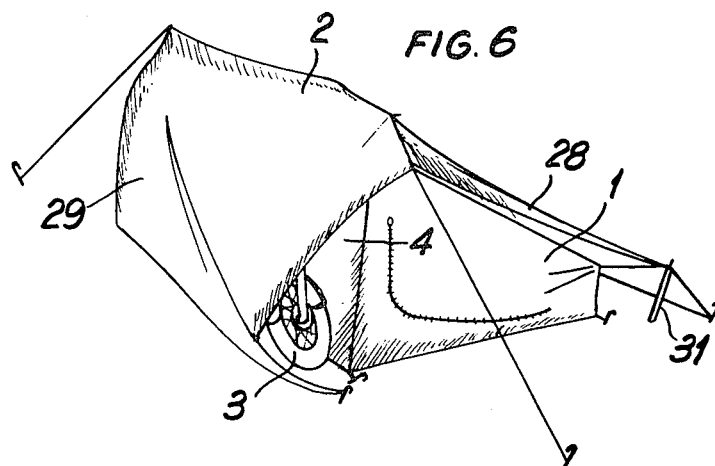


FIG. 5





## CAMPING TENT FOR MOTORCYCLES AND CYCLISTS

This invention relates to a camping tent which is specially intended for motor-cyclists and cyclists, the tent being designed to serve both as a sleeping tent for these users and at the same time as a shelter for protecting the motor-cycle or bicycle against bad weather conditions.

In point of fact, camping tents of the type in use at the present time do not lend themselves to the practical requirements mentioned above. In actual practice, motor-cyclists or cyclists who make use of tents of this type are separated from their vehicle which is consequently liable to be stolen during the night without their knowledge. Furthermore, no shelter is provided for the bicycle or motor-cycle unless a covering is supplied in addition to the sleeping tent. Moreover, conventional camping tents are relatively heavy and cumbersome, especially by reason of the fact that they have a metal frame for supporting the tent fabric.

The tent in accordance with the invention is so designed as to be associated with a bicycle or motor-cycle and to be supported by this latter without entailing the need for a supporting framework. This tent is accordingly designed in the form of a penthouse which can be mounted against one side of a bicycle or motor-cycle and has a vertical wall extending alongside this latter, the double roof of said tent being capable of covering said bicycle or motor-cycle either by forming an awning on the other side of this latter or by extending downwards along the side opposite to the tent.

Under these conditions, the tent under consideration forms both a sleeping tent for the users of a bicycle or motor-cycle and a shelter for the protection of this latter while nevertheless keeping the bicycle or motor-cycle outside the sleeping tent proper. The occupants of the tent are in fact separated from the bicycle or motor-cycle by the vertical wall of the tent which is mounted against one side of this latter.

Further particular features and advantages of the tent in accordance with the invention will in any case be brought out by the description which now follows below, reference being made to the accompanying drawings which are given solely by way of illustration, and in which:

FIG. 1 is a perspective view of the tent as shown in the position of utilization;

FIG. 2 is a corresponding view in side elevation;

FIG. 3 is a fragmentary vertical sectional view of a detail of the mode of attachment of the tent and of the double roof;

FIG. 4 is a view in elevation of a motor-cycle as equipped for receiving the tent in accordance with the invention;

FIG. 5 is a perspective view of an alternative form of construction showing some of the fastening means provided on said motor-cycle for the purpose of securing the tent in accordance with the invention to this latter;

FIGS. 6 to 9 are diagrammatic views in perspective showing a number of possible modes of conversion of the tent in accordance with the invention.

The tent under consideration comprises a tent 1 proper and a double roof 2 which covers this latter. The inner tent 1 assumes the shape of a penthouse which can be placed against one of the sides of a motor-cycle 3. To this end, said inner tent has a vertical section of triangu-

lar or trapezoidal shape. The tent therefore has a vertical wall 4 having a height which is substantially equal to that of the motor-cycle 3 and a length which can also be of the same order as that of said motor-cycle.

The inclined face 5 can extend downwards to the ground or to a vertical wall 6 of small height and located at the end remote from the motor-cycle. Said tent is closed at both ends by vertical walls 7 of triangular or trapezoidal shape. At least one of said vertical walls has a door which gives access to the tent and is formed by an opening, the edges of which are provided with suitable closure means such as, for example, a slide or zip fastener 8, or else hook-and-eye fasteners, press-studs and the like.

The top edge 9 of the tent 1 is secured at its extremities to the frame of the motor-cycle 3 or of accessory motor-cycle elements which can be specially designed for the purpose of mounting the tent. Preferably, the tent as well as the double roof 2 can be designed so that they can be packed in a saddle-bag 10 which is intended to be fixed on the luggage carrier or on the rear portion of the motor-cycle. Said saddle-bag can accordingly receive all the tent components, that is to say not only the inner tent 1 and its double roof but also the tent pegs 11, the guy ropes 12 and all the other accessories with the exception, however, of the system for fastening the tent on the front portion of the motor-cycle; this fastening system can be permanently mounted on the handlebar 13 of the motor-cycle or on any other portion of the front end of the frame.

The top edge 9 of the tent 1 is attached at its opposite end to a supporting member which is carried by the saddle-bag 10. Said supporting member can consist of a tube 14 having a pointed end 15. Said tube is detachably mounted at the end of another tube 16 which is stationarily fixed within the interior of the saddle-bag 10. In fact, said tube 16 is secured against the internal face of the rear wall of the saddle-bag 10 (as shown in FIG. 4) by means of a fastening-collar 17. The arrangement is such that the tube 16 does not project beyond the saddle-bag and therefore does not cause any hindrance.

At the time of erection of the tent, it is only necessary to adapt the tube 14 which is thus placed in an upwardly inclined position. In point of fact, provision is made on the corresponding top corner of the inner tent 1 for an outer ring 18 which is intended to be passed over the pointed end 15 of the tube 14 (as shown in FIG. 3). So far as the corresponding corner of the double roof 2 is concerned, this latter is provided with an eyelet 19 which is also intended to be engaged over the pointed end 15.

By virtue of the system adopted for fastening the tube 16 within a collar 17, it is possible to adjust the height of the pointed end 15 of the tube 14 in order to ensure perfect erection both of the tent and of the double roof. At the front end of their top edge, the tent 1 and the double roof 2 are attached to the pointed end 20 of a tube 21 which virtually replaces the vertical pole of a normal tent. This fastening operation is carried out in the same manner as at the rear end since the corresponding corner of the tent is provided with an outer ring 22 which is fitted on the pointed end 20 whilst the double roof is provided with an eyelet 23 which is also engaged on said pointed end.

The tube 21 which serves as a supporting element at the front end is removably fixed on the handlebar 13 of the motor-cycle 3 by means of a fastening system comprising two collars 25 and 26 which are capable of rela-



tive pivotal motion. The first fastening-collar is fixed on the handlebar 13 whilst the second fastening-collar is capable of receiving the tube 21. The useful length of said tube can thus be adjusted at will by displacing it in sliding motion within the collar 26. Moreover, it is possible to modify the orientation of the tube by pivotal motion with respect to the collar 25, a nut 27 being provided for locking the complete assembly in the desired position.

The top edge 9 of the inner tent can be stiffened by means of a cable and a suitable tensioning system. This cable can be of any suitable material such as a metal cable, a rope of synthetic material and so forth. However, the cable can also be replaced by an overpleat at the hem of the tent fabric.

It is readily apparent that, prior to erection of the tent in accordance with the invention, the motor-cycle must be fixed in position on the ground by means of the stand with which it is normally equipped for this purpose. The inner tent 1 can then be installed against the right or left side of the motor-cycle as shown in FIGS. 1 and 2. So far as the double roof 2 is concerned, it has two panels 28 and 29 respectively and the surface area of one of these latter, namely the panel 28 in this instance, is sufficient to cover the inner tent 1 completely. In regard to the second panel 29, this latter is intended to be placed on the other side of the motor-cycle. This panel is of sufficient area to extend down to the ground, thus protecting the motor-cycle on the side considered. Said panel can then be anchored to the ground by means of pegs and by engagement of its bottom edge beneath the wheels of the motor-cycle as shown in FIGS. 1 and 6.

However, as illustrated in FIG. 7, said panel 29 can also be stretched slantwise in a similar manner to the panel 28, in which case it also serves to protect the motor-cycle against the effects of bad weather. In this case, users of the tent have at their disposal a storage space in which a certain number of objects can be placed under cover and are thus unexposed to bad weather.

However, as shown in FIG. 8, it is also possible to lift the second panel 29 of the double roof so as to form an awning by securing the outer corners of the panels to the upper ends of two supporting poles 30 constituted by interassembled tube sections. Thus the users of the tent are provided with a daytime shelter. This shelter can also serve as a kitchen corner or for any other requirement.

The two poles 30 which are provided for lifting the panel 29 of the double roof so as to form an awning can also be employed for supporting the tent 1 and the double roof 2 instead of the frame of the motor-cycle 3 as shown in FIG. 9. This makes it possible to take the motor-cycle out during the day. Under these conditions, the motor-cycle can accordingly be employed without entailing the need to dismantle the tent.

The inner tent 1 can have a sufficient volume to offer one or two sleeping areas with or without awning and with or without storage space. This tent can have a groundsheet which may or may not be bonded to the other walls. The fabric panel constituting the vertical wall 4 which is placed alongside the motor-cycle can be fireproofed in order to afford resistance to the heat of the motor-cycle engine and other hot portions. If so required, however, said vertical wall could be provided with one or a number of openings for allowing the heat of the engine to penetrate inside the tent 1; such openings would also enable the occupants of the tent to gain

access to the saddle-bag 10 which is fixed on the side of the motor-cycle.

The tent 1, one side of which is secured to the motor-cycle frame, can be fitted on the opposite side with guy-ropes 12 attached to pegs 11 which are fixed in the ground. However, provision can also be made for any other suitable system such as, for example, small poles 31 from which the corners of the tent roof are suspended by means of tensioning cables 32, said poles being also employed for supporting the corresponding corners of the double roof.

By virtue of its design concept, the tent according to the invention offers the following main advantages:

- (a) said tent constitutes a camping shelter which provides sleeping accommodation for one or a number of motor cyclists and ensures that their motor-cycle is not liable to be stolen during the night without their knowledge;
- (b) at the same time, said tent provides a shelter for the protection of both motor-cycle and luggage against unfavorable weather conditions;
- (c) said tent can be installed without entailing any need to unload the items of luggage which are placed on the motor-cycle and which are protected by the double roof;
- (d) ease of erection and dismantling of the tent and the small bulk of the tent components after disassembly;
- (e) momentary heating of the sleeping area by means of the heat given off by the motor-cycle engine;
- (f) the possibility of a complementary shelter on the side opposite to the tent 1 by lifting the second panel 29 of the double roof so as to form an awning (as shown in FIG. 9).

However, it is also possible to install beneath the second panel 29 of the double roof a second sleeping tent which is similar to the tent 1. Moreover, this second tent can also be secured to the corresponding side of the motor-cycle.

As can readily be understood, the tent in accordance with the invention is not limited to the example of construction described in the foregoing in which different modifications can accordingly be made. Thus, the means for fastening the ends of the top edge of the tent and of the double roof on the motor-cycle frame can be modified. Moreover, FIG. 5 illustrates another form of construction of the means for fastening the front end of the top edge of the tent and of the double roof.

In this form of construction, provision is made for a tube section 33 which is stationarily fixed on the motor-cycle handlebar 13 by means of a fastening-clamp 34 on which said tube section is pivotally mounted. The tube section can be fitted with another tube 35 which is intended to replace the tube 21 described earlier. Said tube 35 is capable of sliding within the tube section 33 but can be locked in position within this latter in a number of different positions by means of a locking stud 36 carried by a leafspring 37. Said locking stud can be engaged in any one of a series of holes 38 which are formed in the tube 35.

It is readily apparent that the use of the tent under consideration is not limited to motor-cyclists alone. In fact, the tent is also suitable for cyclists, in which case the inner tent 1 can be installed against one of the sides of a bicycle after this latter has been fixed in a vertical position, for example by means of a retractable stand for supporting the bicycle on the ground. In this case, the double roof 2 is disposed in the same manner as before,

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that is to say partly above the inner tent and partly underneath the corresponding bicycle which is thus protected from inclement weather conditions.

I claim:

1. The camping tent to be associated with a vehicle, comprising an inner portion having an inner first roof section and a wall section and adapted to form, in an erected position of the tent, a closed first shelter for a user with said wall extending in an upright direction; an outer roof portion connected with said wall section and including a second roof section which extends in said erected position, from one side of said upright wall section in a first direction and above said first roof section of said inner portion so as to cover said inner portion from above and thereby to protect said first shelter for a user, and a third roof section which extends in said erected position from the opposite side of said upright wall section in a second direction which is opposite to said first direction and defines therewith a second shelter adapted to accommodate the vehicle and located outside of said first shelter for a user, said wall section and said inner portion each having a top edge extending in a third direction which is transverse to said first and second directions and having two end portions spaced from one another in said third direction; and mounting means in at least one of said top edges, arranged for mounting the tent on the vehicle so that the tent assumes its erected position in which it is supported by the vehicle so that said first shelter for the user is separated from said second shelter for the vehicle by said upright wall section, and the vehicle cannot be withdrawn from the tent by an unauthorized person without collapsing the tent, said mounting means including first and second mounting means which are spaced from one another in said third direction and arranged to support said first and second end portions of said one top edge, respectively, and to tension the tent in said third direction which is transverse to said first and second directions.

2. The camping tent as defined in claim 1, wherein said third roof section of said outer roof portion is movable so as to define said second shelter in a form of an awning.

3. The camping tent as defined in claim 1, wherein said other third roof section of said outer roof portion is

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movable so as to extend downwardly when the tent is erected.

4. The camping tent as defined in claim 4; and further comprising erection elements mountable on the vehicle and arranged for interacting with said mounting means so as to support said top edge.

5. The camping tent adapted to be associated with a vehicle having a carrier bag secured to a rear end of the vehicle, as defined in claim 1, wherein said top edge has one end, said first mounting means being provided at one end portion of said top edge and attachable to the carrier bag of the vehicle, said inner portion and said roof portion being accommodatable in the carrier bag of the vehicle when the tent is in a folded condition.

6. The camping tent as defined in claim 5; and further comprising an additional element mountable on the carrier bag of the vehicle and connectable with said first mounting means.

7. The camping tent as defined in claim 6, wherein said first mounting means is a tube.

8. The camping tent as defined in claim 1; and further comprising a fastening system attachable to a front portion of the vehicle, said second mounting means being provided in another end portion of said top edge and attachable to said fastening system.

9. The camping tent as defined in claim 8, wherein the vehicle has a handlebar, said fastening system being attachable to a handlebar of the vehicle.

10. The camping tent as defined in claim 8, wherein said second mounting means includes a tube receivable in said fastening system and adapted to support the corresponding end of said top edge, said tube being adjustable in its useful length and orientation.

11. The camping tent as defined in claim 1; and further comprising substantially upright supporting elements each having two spaced ends, one end of each of said supporting elements abutting against and supporting said inner portion and said roof portion when the tent is erected, independently from the vehicle so that the vehicle can be removed from said second shelter after disconnecting the tent from the vehicle but without dismounting of the tent.

12. The camping tent as defined in claim 11, wherein said supporting elements are two poles.

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# United States Patent [19]

Simpson

[11] Patent Number: 4,612,948

[45] Date of Patent: Sep. 23, 1986

[54] PORTABLE SHELTER OR TENT  
ENCLOSURE, STRUCTURES AND  
COMPONENTS THEREFOR

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[21] Appl. No.: 685,555

[22] Filed: Dec. 24, 1984

[51] Int. Cl.<sup>4</sup> ..... E04H 15/48; E04H 15/58;  
E04H 15/00; E04H 15/02

[52] U.S. Cl. .... 135/112; 135/117;  
135/120; 135/900

[58] Field of Search ..... 135/117, 900, 901, 87,  
135/101, 106, 107, 109, 113, 117, 120, 112

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Primary Examiner—Robert A. Hafer

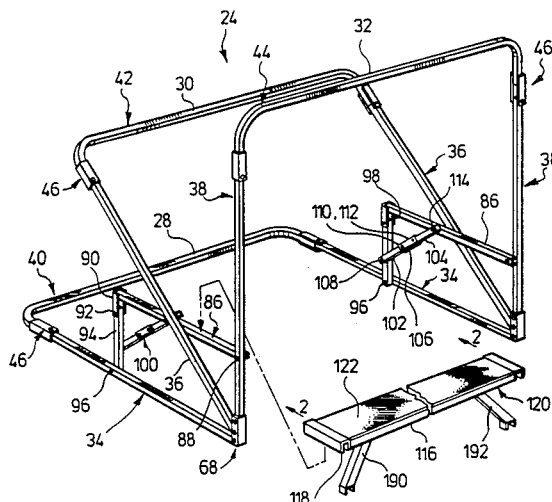
Assistant Examiner—D. Neal Muir

Attorney, Agent, or Firm—Ivor M. Hughes

## [57] ABSTRACT

This invention relates to a portable shelter or tent enclosure having a self supporting frame structure that may be pivotally erected and collapsed for supporting a fabric cover. The frame comprises at least three substantially U-shaped frame members which are linked at the ends of each of the parallel side arms remote the top of the U at about a common point. At least two of the three frame members are braceable in an angularly spaced apart position by segments comprising a pair of laterally braced parallelograms pivotally linked to the pairs of side arms. The frame structure has a removably securable horizontal frame brace that is easily connected to and removed from the top of the laterally braced parallelogram of the frame and includes arms extending angularly downwardly to the side from the brace to the parallel side arms forming the base of the laterally braced parallelogram thereby providing an effective lateral brace to the frame.

7 Claims, 19 Drawing Figures



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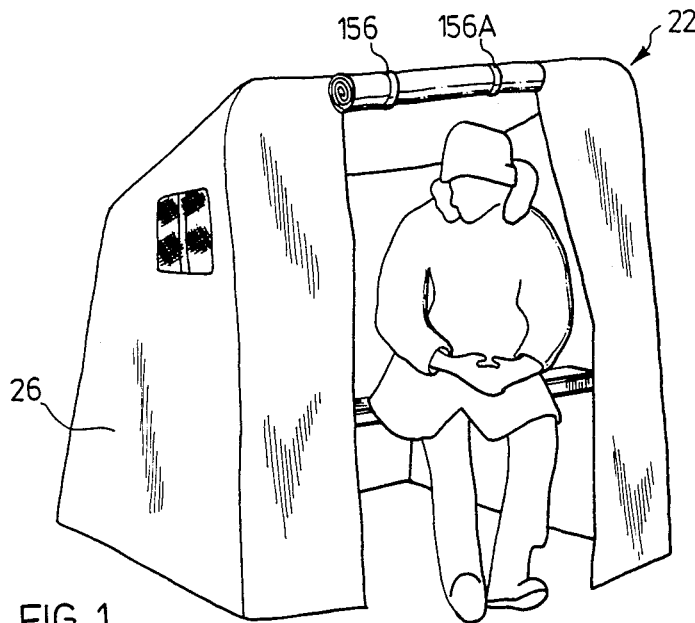
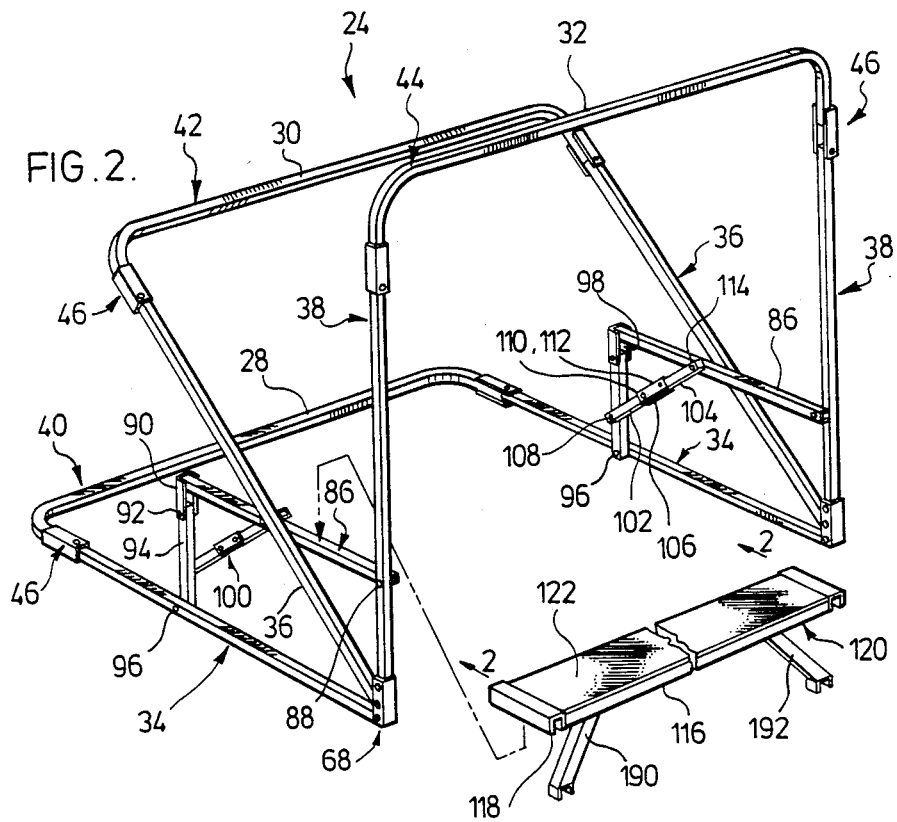


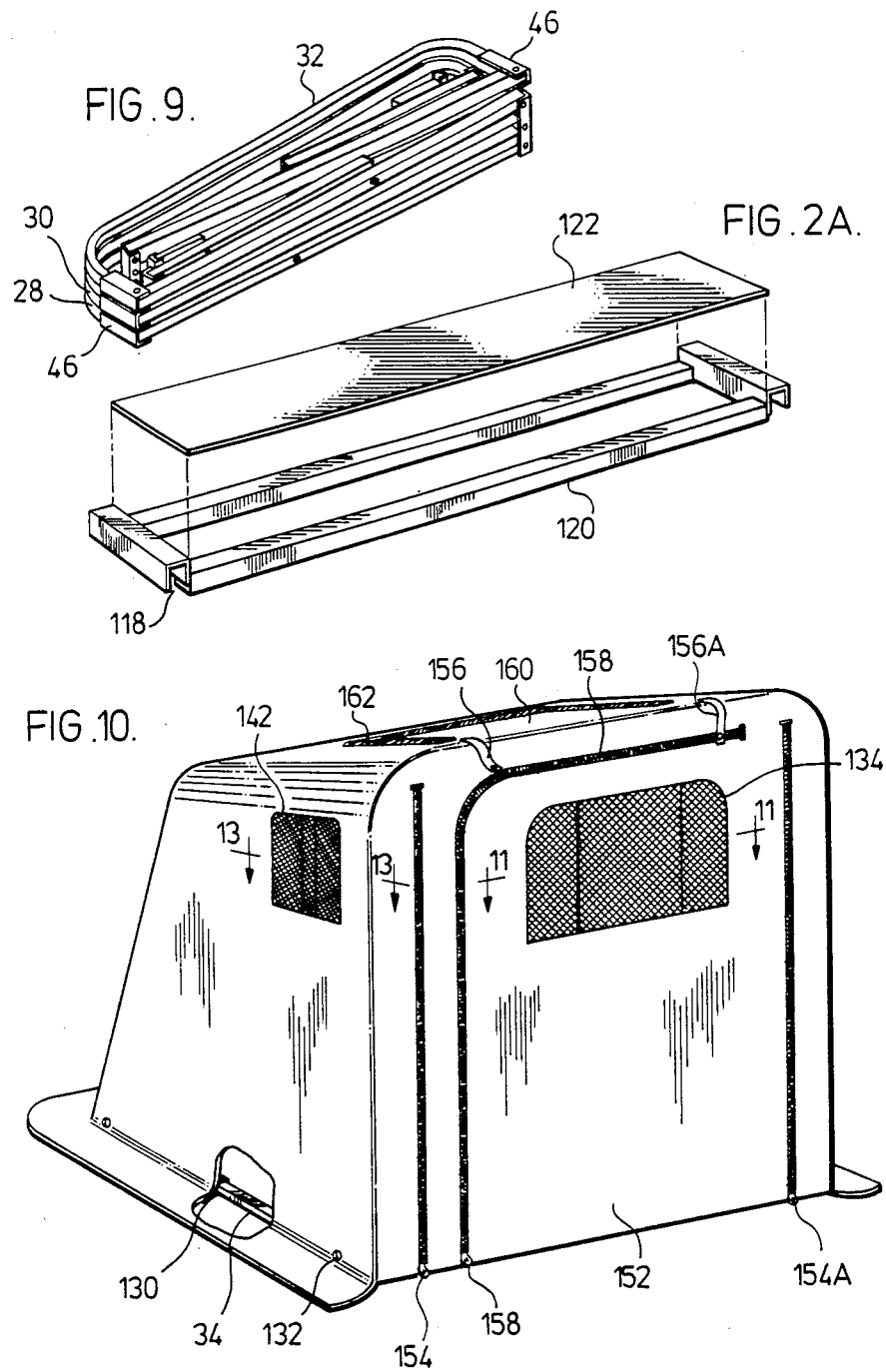
FIG. 1.



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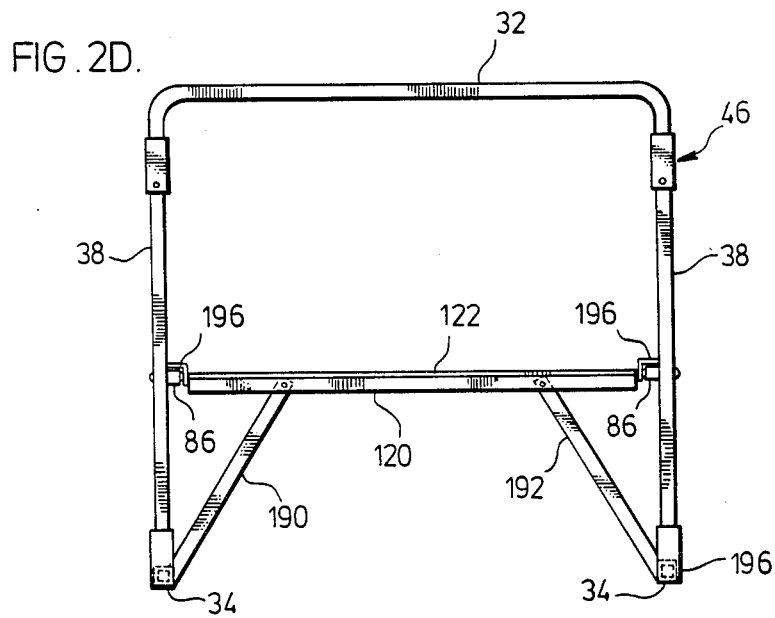
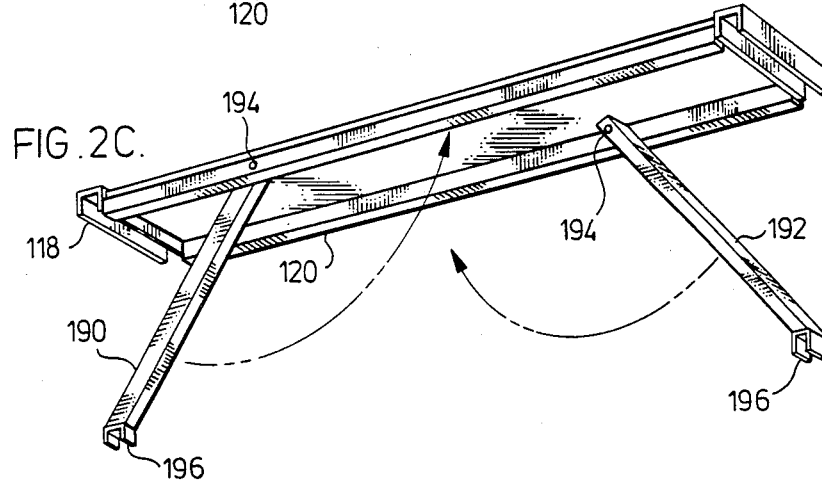
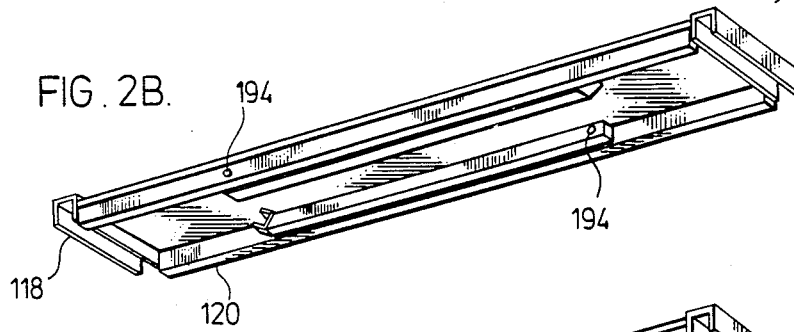
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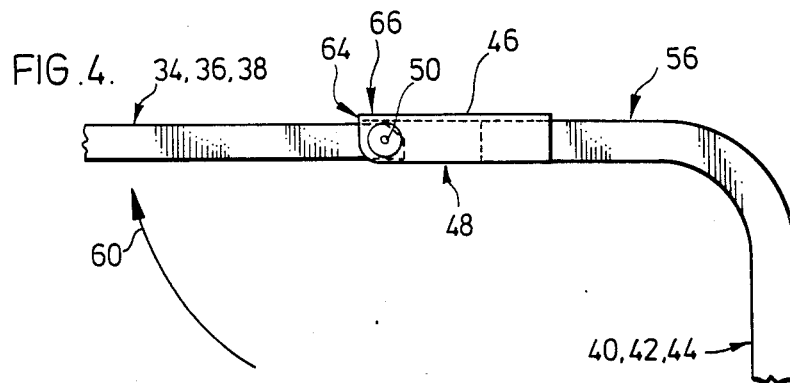
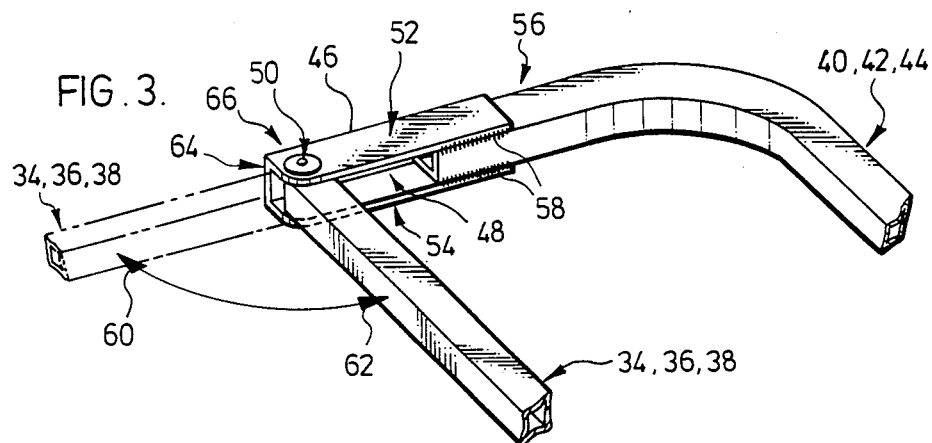
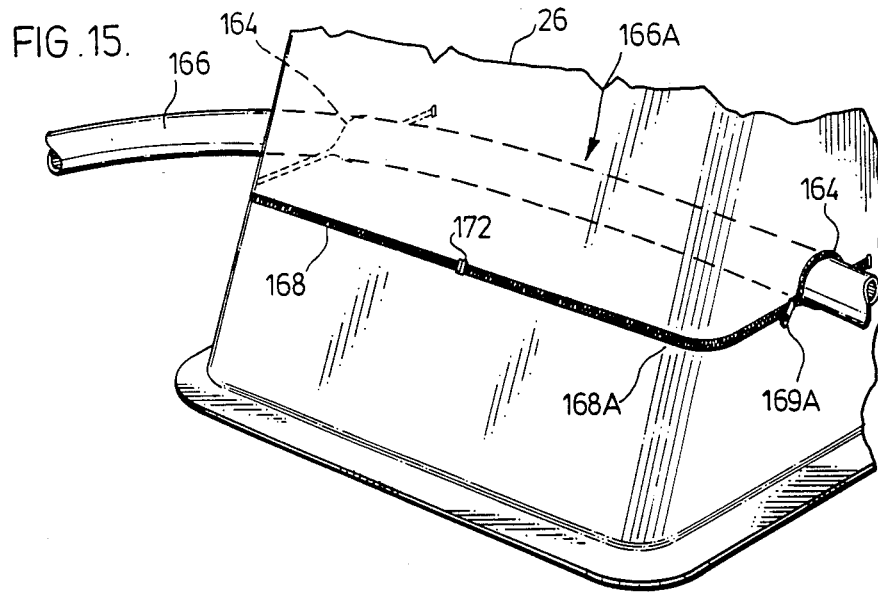




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FIG. 5.

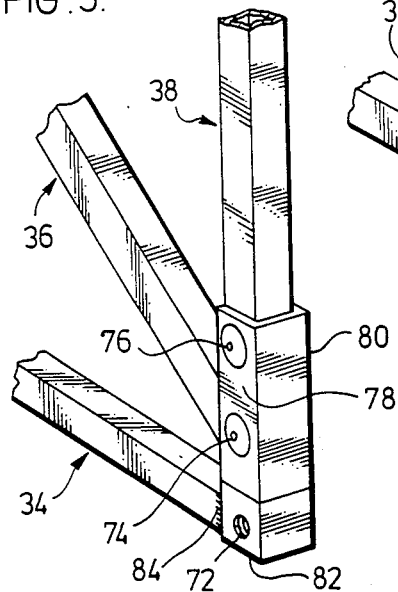


FIG. 6.

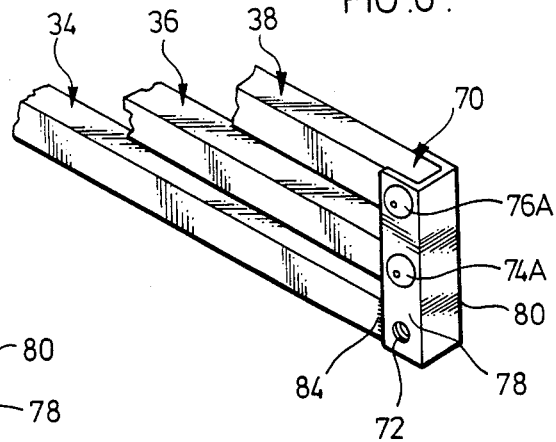
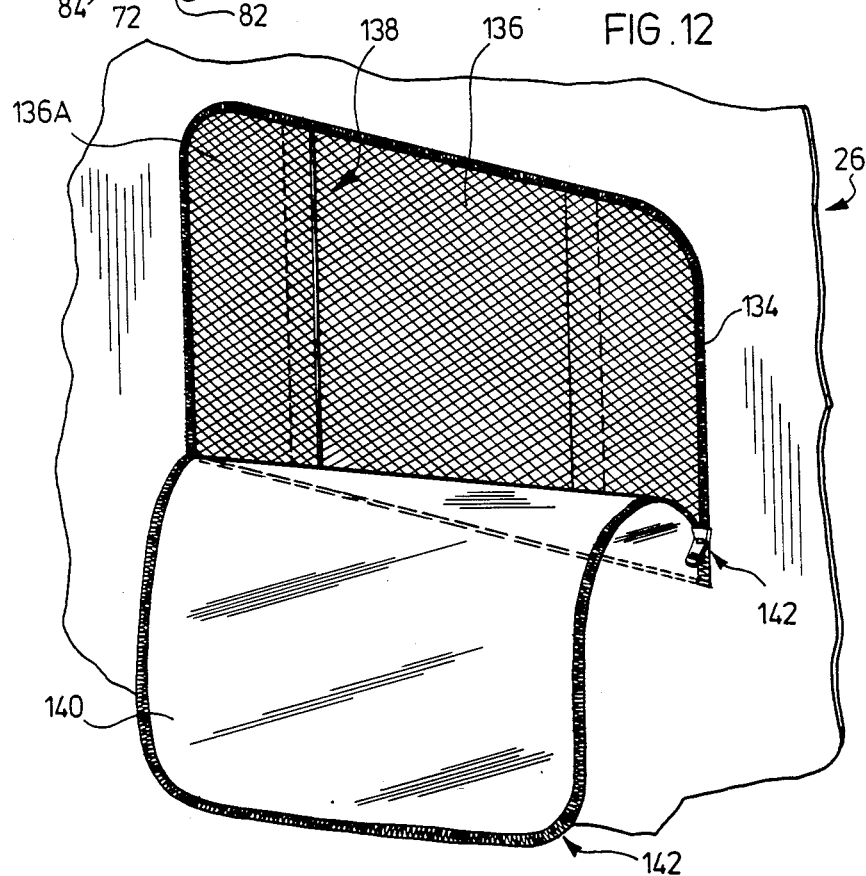


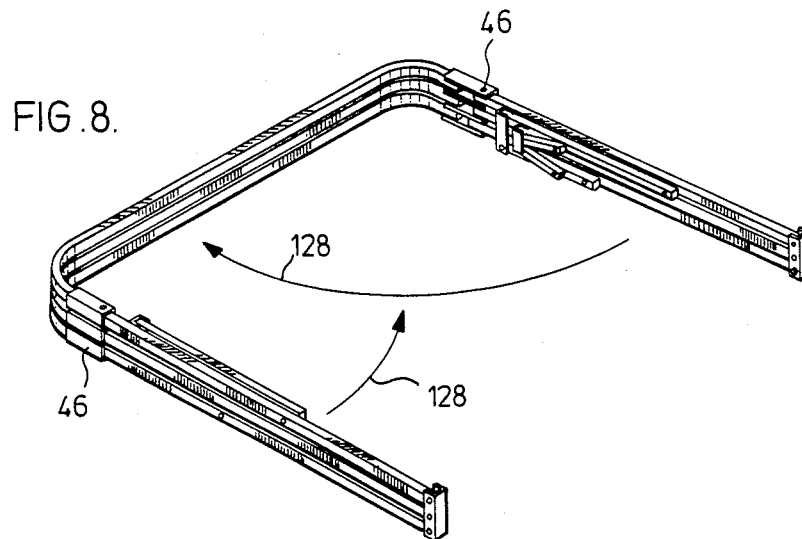
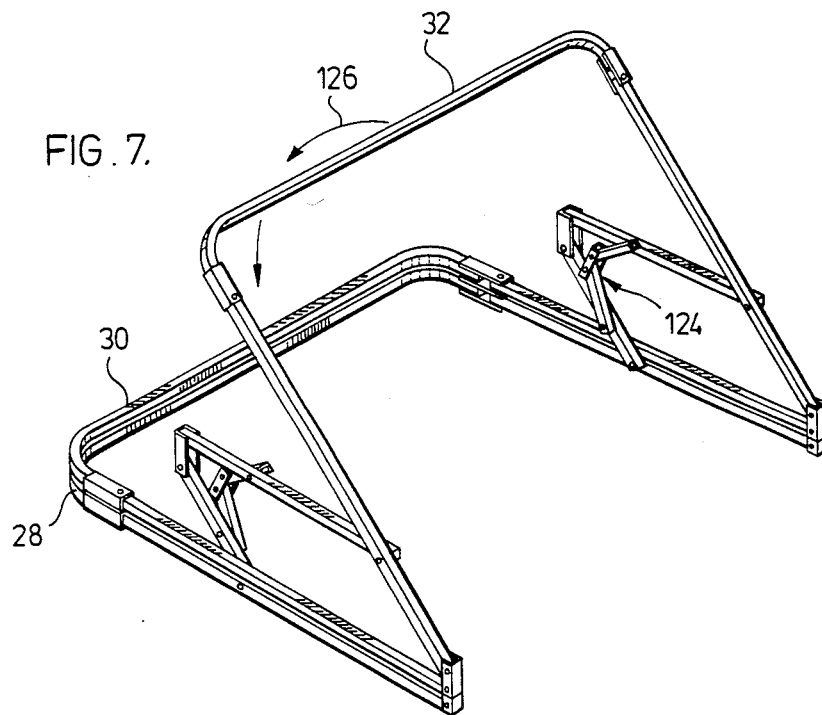
FIG. 12



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FIG. 11.

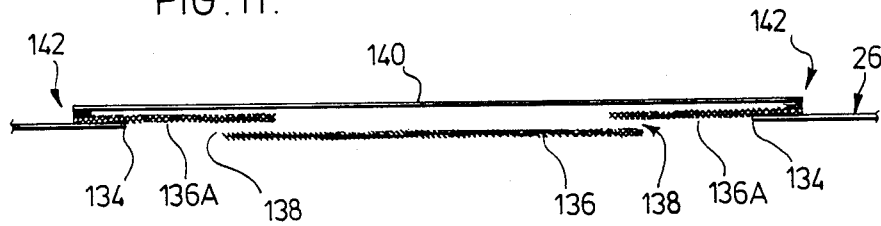


FIG. 13.

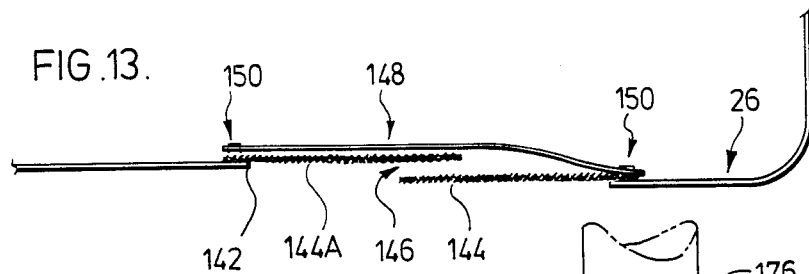
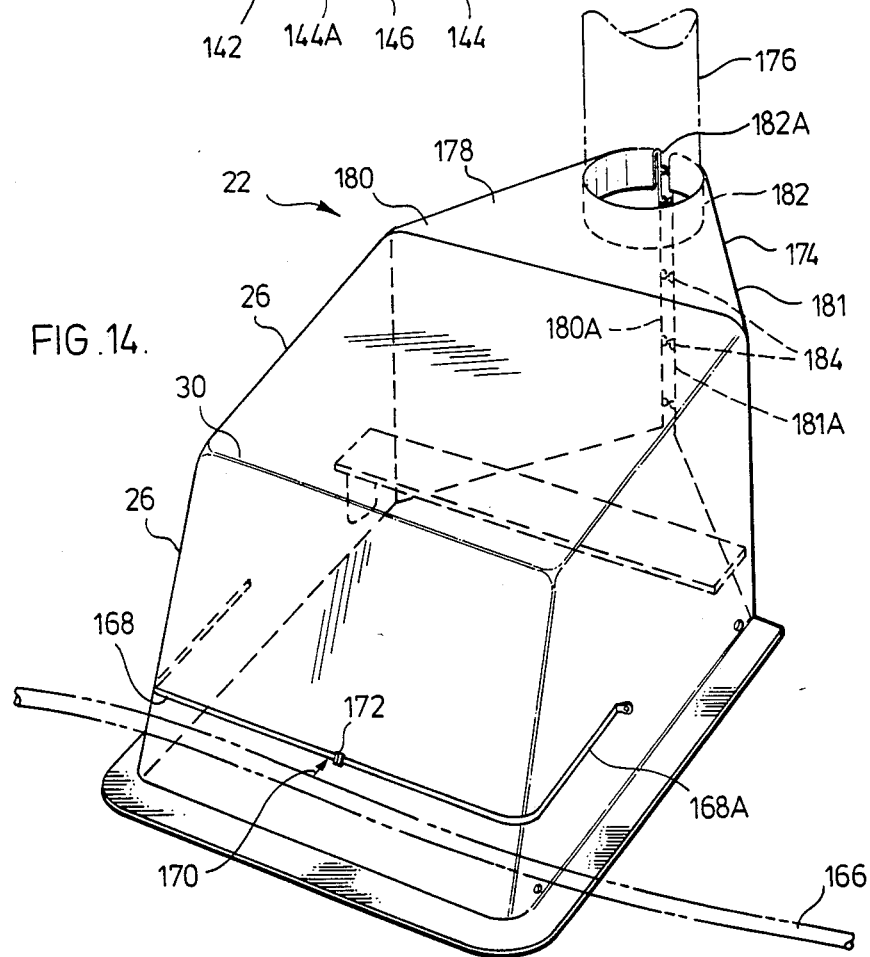


FIG. 14.



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# PORTABLE SHELTER OR TENT ENCLOSURE, STRUCTURES AND COMPONENTS THEREFOR

## FIELD OF INVENTION

This invention relates to an improved portable shelter or tent enclosure, structures and components therefor.

## BACKGROUND OF INVENTION

Tents in use throughout the world, may comprise an underlying or surrounding frame to shape or support a canvas or fabric shelter. In one aspect the shelter of canvas or fabric is supported by underlying poles and stretched by cords secured to pegs driven into the ground; or, the underlying support may comprise a self-supporting framework around which the canvas or fabric is secured. In another aspect, the self-supporting framework may surround and suspend the canvas or fabric shelter. Existing tents require some degree of assembly of the constituent elements comprising the self-supporting framework or some degree of assembly in erecting the combination of fabric supported by underlying poles and stretched by cords secured to pegs driven into the ground. Until my invention, the assembly required has been time consuming and is not advantageous where a portable shelter is required which may be erected in a matter of seconds without requiring any assembly of its constituent elements. This is so, for example, in the case of field repairs by utility companies in environments where either the worker or the equipment must be protected from the elements by the migration of dust, corrosive contaminants, rain or snow etcetera . . . ; or, for example, where a hunting blind is usefully employed when it may be quickly and inconspicuously set up.

It is, therefore, an object of this invention to provide an improved portable shelter or tent enclosure which overcomes the deficiencies of prior art. Further and other objects of the invention will be realized by those skilled in the art from the following summary of the invention and detailed description of preferred embodiments thereof.

## SUMMARY OF INVENTION

This invention relates to a portable shelter or tent enclosure having a self supporting frame structure that may be pivotally erected and collapsed for supporting a fabric cover. The frame structure has a seat that is easily connected to and removed from the frame structure of the shelter which provides an effective lateral brace when connected to the frame. The portable shelter comprises collapsible self-supporting frame, the shape of the frame when pivotally erected, defined by at least three substantially U-shaped frame members, each frame member having a pair of parallel side arms spaced from each other at the same end by a top arm sufficient to form a substantially U-shape, the top arm at either end carrying a channel in which one end of each side arms is pivotally linked sufficient to permit each side arm to be positioned at a substantially right angle to the top arm and to pivot to a position substantially parallel and adjacent to the top arm; the at least three substantially U-shaped frame members pivotally linked so as to define at least three planes, the at least three side arms spaced on each side of the at least three top arms, at their ends remote the top arm pivotally linked in at least two parallel spaced apart vertical channels, each channel providing at least two vertically spaced pivot points

in which the end portions of the at least two side arms are vertically spaced and pivotally linked to each vertical channel, sufficient to permit the at least three substantially U-shaped frame members defining at least three planes to be spaceable from each other extending pivotally from common pivot points provided by the at least two parallel spaced apart vertical channels so as to provide a frame when pivotally erected having three frame members angularly spaced from a common line of pivot, the angularly spaced frame members comprising a first horizontal frame member, a third vertical frame member, and a second intermediate frame member angularly spaced between the first and third frame member; the at least three angularly spaced frame members when pivotally erected, releasably locked in spaced relationship by a releasable locking means comprising a horizontal locking segment pivotally attached to the vertical side arm of the third vertical frame member at a point spaced from the ends thereof, a vertical locking segment pivotally attached to the horizontal side arm of the first horizontal frame member at a point spaced from the ends thereof, the horizontal locking segment carrying a vertically extending channel in which the end of the vertical locking segment is pivotally linked, at substantially a right angle when the frame is erected, a diagonal locking segment composed of two pivotally attached subsegments connected one to the other by an intermediate channel-shaped locking bar providing at least two spaced pivot points, extending downwardly at substantially 45 degrees when the frame is erected between the vertical and horizontal locking segment so as to lock the position of the vertical locking segment at a substantially right angle to the horizontal locking segment, the said releasable locking means carried on both sides of the frame; and the frame further supported in spaced relationship by a removeably securable horizontal seat extending between and surmounting the horizontal locking segments, the seat carrying two lateral support arms each for extending between the seat and the side arms of the horizontal frame member so as to substantially stabilize the lateral stability of the frame.

In one embodiment of the invention, preferably the frame is constructed of aluminum.

According to another aspect of the invention, a canvas or fabric cover surrounds and is secured to the frame. In one embodiment of the invention, the cover when used in combination with the frame, is suitable for use as a portable hunting blind, providing a plurality of flaps, screens and windows suitable for camouflaging, comprising a front flap door spaced between the arms of the third vertical frame member, a plurality of apertures comprising windows, screens or flaps on the side, back or top of the hunting blind spaced between the angularly spaced side or top arms of the frame members.

Preferably, the screens comprise a fine webbing sewn into an aperture in the cover and are constructed of at least two overlapping pieces of webbing to provide slits which may be ideally spread apart by hand pressure or pressure from the muzzle of a firearm. Preferably, fabric flaps overlie the screens to make the aperture waterproof and may be rolled up to expose the screens.

According to another embodiment of the invention, the flaps may be secured in an opened or closed position by means of a zipper connected to the cover, or by means of fabric ties.

In another embodiment of the invention, the cover, when used in combination with the frame, is suitable for

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use in effecting electrical or telephone field repairs, particularly in the case of electrical components including integrated circuits or switches, fibre optics, cables, or digital equipment where the equipment must be worked upon in a protected environment in order to be kept clean. According to this embodiment, a plurality of zippers, flaps, collars and like are provided sufficiently that the portable tent enclosure may be erected so as to directly enclose the equipment or surround the equipment comprising a substantially horizontally placed zipper extending around the sides and back of the shelter so as to receive and enclose a cable passing longitudinally through the portable tent enclosure; and, further comprising a plurality of flaps extending from the top and sides of the portable tent enclosure proximate the third vertical frame member, the top flap providing at least one vertically extending collar sufficient to surround at least one vertically extending pole proximate its base and thereby form an enclosure about a pole. According to this embodiment of the invention, a pole carrying integrated circuits or switches or digital equipment in a box proximate its base may be enclosed to provide a controlled environment that will not expose the equipment to dust, corrosive contaminants, rain or snow etcetera.

It will be appreciated that the erected shelter may be collapsed to a portable position by removing the horizontal seat releasing the locking means, pivotally placing the third and second frame members in a horizontal position parallel the first horizontal frame member, and pivoting the side arms of each frame member inwardly to a position substantially parallel and adjacent to the corresponding top arm of each frame member. The canvas or fabric cover attached to the frame members substantially conforms to the dimensions of the collapsed frame.

Preferably the cover is secured to the frame by means of loops passing around the frame members or, may be secured by means of bolts or pins passing through the cover and secured to the frame members.

The invention will now be illustrated with reference to the drawings of an embodiment of the invention.

#### DESCRIPTION OF DRAWINGS

FIG. 1 is a perspective view of a portable shelter in one embodiment of the invention.

FIG. 2 is a perspective view of a pivotally collapsible self-supporting frame for the portable shelter shown in FIGS. 1, 10 and 14, shown in an erected position.

FIG. 2A is a top perspective partially exploded view of part of the seat shown in part of FIG. 2.

FIG. 2B is a lower perspective view of the seat shown in FIGS. 2, 2A, 2C, 2D depicting unextended lateral support arms.

FIG. 2C is a lower perspective view of the seat shown in FIG. 2B, depicting extended lateral support arms.

FIG. 2D is a side view taken along lines 2—2 (in FIG. 2) of a seat and frame depicting the seat laterally supporting the elements of the frame in spaced relationship.

FIG. 3 is a close-up perspective partially cut away view of a pivotal joint for the frame shown in FIGS. 2, 7, 8 and 9, shown variably in an erected and a collapsed position.

FIG. 4 is a side view of the joint shown in FIG. 3, shown in an erected position.

FIG. 5 is a close-up perspective partially cut away view of a joint providing three vertically spaced pivot

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points for the frame shown in FIGS. 2, 7, 8 and 9, shown in an erected position.

FIG. 6 is a view of the joint shown in FIG. 5, shown in a collapsed position.

FIG. 7 is a perspective view of the frame shown in FIG. 2, shown in a partially collapsed position.

FIG. 8 is a perspective view of the frame shown in FIG. 2, shown in a partially collapsed position.

FIG. 9 is a perspective view of the frame shown in FIGS. 2, 7 and 8, in a fully collapsed position.

FIG. 10 is a perspective view of one embodiment of the portable shelter.

FIG. 11 is a top view of the front screen and flap system shown in FIG. 10.

FIG. 12 is a perspective view shown from the inside of the portable shelter of the front screen and flap system shown in FIGS. 10 and 11.

FIG. 13 is a top view of the side screen and flap system shown in FIG. 10.

FIG. 14 is a perspective view of one embodiment of the portable shelter, surrounding a cable or pole.

FIG. 15 is close-up perspective partially cut away view of a portion of the portable shelter shown in FIG. 14 surrounding a cable.

#### DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

With reference to FIG. 1, a portable shelter or tent enclosure 22 is shown comprising a pivotally collapsible self-supporting frame 24 (best shown in FIG. 2) secured to a surrounding canvas or fabric cover 26.

With reference to FIG. 2, the frame 24, when pivotally erected is shown comprising a first horizontal frame member 28, a second intermediate frame member 30, and a third vertical frame member 32. Frame members 28, 30, and 32 each comprise a pair of parallel side arms 34, 36 and 38, spaced from each other by a top arm 40, 42 and 44 respectively. The top arm 40, 42 and 44 extending horizontally is curved at both ends to carry two vertically oriented pivotal joints 46 (best shown in FIGS. 3 and 4), pivotally linking side arms 34, 36, 38 and top arms 40, 42, 44 respectively.

With reference to FIG. 3, pivotal joint 46 is U-shaped and comprises a vertically oriented channel 48 opening inwardly towards top arms 40, 42, 44 receiving side arms 34, 36, 38 respectively and pivotally linked to side arms 34, 36, 38 by pin 50 passing through side wall 52, 54 of channel 48 and side arm 34, 36, 38.

Channel 48 at end opposite pin 50 receives vertically oriented segment 56 of top arm 40, 42, 44 and is permanently secured thereto preferably by means of a weld 58.

Side arm 34, 36, 38 may thereby extend from an erected 60 to a collapsed 62 position.

With reference to FIG. 4, it will be appreciated from a top view of the pivotal joint 46 that pin 50 is spaced from the end 64 of channel 48 sufficient to permit the back 66 of channel 48 to prevent side arm 34, 36, 38 from opening beyond erected position 60.

With reference to FIGS. 2, 5 and 6, a frame member pivot joint 68 is provided. Pivot joint 68 stands upright and comprises a vertically oriented channel 70 (best shown in FIG. 6) opening towards frame members 28, 30, 32 and receiving vertically spaced ends of side arms 34, 36, 38; channel 70 carrying a plurality of at least two vertically spaced apertures 72, 74, 76 (one of which is shown at 72) through both of side walls 78, 80 defining the lateral extent of channel 70, whereby side arms 34,



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36, 38 are pivotally linked to side walls 78, 80 of channel 70 by pin 74A, 76A, passing through side walls 78, 80 and side arms 36, 38. Preferably, the end of side arm 34 of horizontal frame number 28 is secured inside base 82 of vertically oriented channel 70 by weld 84 and does not require a pin as seen with reference to side arms 36, 38 pivotally secured by pins 74A, 76A.

With reference to FIG. 6, it will be appreciated that pivotal points defined by pins 74A, 76A are vertically spaced to permit side arms 36, 38 to pivot from a substantially vertical to a substantially horizontal position. Accordingly, it will be appreciated that the ends of side arms 36, 38 are bevelled to permit pivotal rotation within channel 48.

With reference to FIG. 2, to releasably secure frame 24 in erected position there is provided horizontal locking segment 86 pivotally attached to side arm 38 by pin 88; segment 86 at its opposite end carries a vertically oriented pivotal joint 90 (similar to pivotal joint 46) which is pivotally attached by pin 92 to vertical locking segment 94. Vertical locking segment 94 is pivotally attached to side arm 34 by pin 96. It will be appreciated that pivotal joint 90 is identical in structure to pivotal joint 46 and therefore provides a channel 98 opening towards horizontal locking segment 86. Channel 98 receives end of horizontal locking segment 86 and is welded thereto.

Horizontal locking segment 86 and vertical locking segment 94 are locked in angular relationship of substantially 90 degrees with respect to one another by a diagonal locking segment 100 composed of subsegments 102, 104. Subsegments 102, 104 are connected one to the other by a channel-shaped locking bar 106. Locking bar 106 comprises a channel surmounting and receiving ends of subsegments 102, 104 and pivotally linked thereto by pins 110, 112. Subsegments 102, 104 are pivotally linked to locking segments 94, 86 by pins 108, 114 respectively. It will be appreciated that locking segments 94, 86 support the angular relationship between frame side arms 34, 38; diagonal locking segment 100 secures locking segments 94, 86 at an angular relationship to one another of substantially 90 degrees.

With reference to FIGS. 2, 7, 8 and 9, it will be seen that when an angularly upward pressure along a vector 124 is applied to locking bar 106, diagonal locking segment 100 is collapsed permitting horizontal locking segment 86 and vertical locking segment 94 to pivot to a substantially parallel position with respect to one another; simultaneously, vertical frame member 32 is released and may collapse along curved vector 126 to a position substantially parallel with horizontal frame member 28. It will be appreciated that intermediate frame member 30 is only linked to frame 24 at aperture and pin 74, 74A; angular position of intermediate frame member 30 is secured by web of cover 26 extending between frame members 28, 30, 32 (best seen in FIG. 14). With regard to FIG. 8, horizontally collapsed side arms 34, 36, 38 may be pivotted at joints 46 along vectors 128 to fully collapse frame (best seen in FIG. 9). It will be appreciated that cover 26 is secured to frame by loops 130 zoned to cover 26 and extending around frame members or by pins 132 extending through cover 26 and frame members (best shown in FIG. 10), sufficiently that cover 26 substantially conforms to configuration of frame 24 when frame is either erected (FIG. 2) or fully collapsed (FIG. 9).

With reference to FIGS. 2A, 2B and 2C, it will be seen that seat 116 comprises downwardly oriented

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channels 118 spaced apart by and welded to support bars 120 which carry pivotally connected lateral support arms 190, 192. Support bars 120 carry an overlying seat cushion or board 122. Channels 118 are of dimensions suitable to frictionally surmount horizontal locking segments 86. Lateral support arms 190, 192 pivot in relation to support bars 120 by means of a pin 194 and at the opposite end carry downwardly oriented channels 196 of dimensions suitable to frictionally surmount horizontal side arms 34. With reference to FIGS. 2 and 2D, seat 22 comprising extended lateral support arms 190, 192 surmounting horizontal side arms 34 and channels 118 surmounting horizontal locking segments 86 is essential so as to substantially stabilize the lateral stability of pivotally collapsible self-supporting frame 24 while erected.

With reference to FIG. 10, 11, 12 and 13, a frame 24, cover 26 therefor and a system of flaps, screens and windows for cover 26 are shown in one embodiment preferably suitable as an outdoor portable shelter; for example, hunting blind. Front aperture 134 comprises a fine webbing or screen 136 sewn into aperture 134 in cover 26 constructed of at least two overlapping pieces of webbing 136, 136A to provide slits 138 which may be ideally spread apart by hand or pressure from the muzzle of a firearm. Inside front flap 140 releasably overlies screen 136, 136A by closing zipper 142 communicating between flap 140 and circumference of aperture 134. Side aperture 142 comprises a fine webbing or screen 144, 144A sewn into aperture 142 in cover 26 constructed of at least two overlapping pieces of webbing 144, 144A to provide slit 146; inside side flap 148 overlies screen 144, 144A by closing zipper 150 communicating between flap 148 and circumference of aperture 142. It will be appreciated that flaps 140, 148 form a waterproof seal with cover 26; and that as many embodiments of apertures 134, 142 as necessary may be finished into cover. With reference to FIG. 10, front door 152 may be rolled up by unzipping vertically oriented zippers 154, 154A and securing door 152 with ties 156, 156A (best shown in FIG. 1). Door 152 may be unzipped to provide an open flap of controlled aperture by employing a vertically and horizontally oriented zipper 158.

As many embodiments of door 152 as necessary may be finished into cover 26; top waterproof flap 160 is shown in FIG. 10, comprising inwardly opening flap 160 and zipper 162.

With reference to FIGS. 14 and 15, a frame 24, cover 26 therefor and a system of flaps, collars and zippers for cover 26 are shown in another embodiment preferably suitable as a portable shelter outdoors or indoors (for example, in an underground hydro vault) in effecting electrical or telephone field repairs particularly in the case of electrical components including integrated circuits or switches, fibre optics, cables, or digital equipment where the equipment must be worked upon in a protected environment free of dust, corrosive contaminants, rain or snow etcetera. Horizontally extending aperture 164 (best shown in FIG. 15) for electrical cable 166 passing longitudinally through cover 26 comprises two sections of a horizontally extending zipper 168, 168A which may be opened to provide a cross-sectional horizontally extending slit 170 to receive longitudinally extending cable 166, and zipped closed behind cable 166 to enclose section 166A of cable to be worked on in cover 26. It will be appreciated that sliding pieces 169, 169A of zipper sections 168, 168A may be reciprocated

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to central clasp 172; sliding piece 169, 169A reciprocates towards central clasp 172 upon upper or lower strip of teeth and thereby passes over cable 166 once cable 166 is inserted in cross-sectional slit 170 proximate aperture 164. Sliding piece 169, 169A joins clasp 172 and closes slit 170 behind cable 166 by drawing upper and lower strips of teeth into interlocking position.

Enclosure 174 for a vertically extending pole 176 comprises a plurality of top 178 and side 180, 181 flaps extending outwardly from front of shelter 22 defined by vertical frame member 32. Top enclosure flap 178 carries a vertically extending collar 182 of sufficient circumference to extend around circumference of pole 176. Vertically extending edges of collar 182A and side flaps 180A, 181A are joined by a plurality of any suitable fasteners 184 to complete enclosure 174, thereby providing a protected environment around electrical components carried by pole 176 proximate its base.

As many changes can be made to the embodiment of the invention without departing from the scope of the invention, it is intended that all material be considered illustrative of the invention and not in a limiting sense.

The embodiments of the invention in which an exclusive property or privilege is claimed are as follows:

1. A portable shelter or tent enclosure comprising a pivotally collapsible self-supporting frame for supporting a fabric cover comprising a pivotally collapsible self-supporting frame having at least three substantially U-shaped frame members, each substantially U-shaped frame member having a pair of parallel side arms spaced from each other at the same end by a top arm, the three pairs of parallel side arms each at the end remote the top arm linked to about a common point, at least two of the three pairs of parallel side arms each at the end remote the top arm pivotally linked to the about common point sufficient to permit at least two of the three substantially U-shaped frame members to be pivotally spaceable so as to permit the three substantially U-shaped frame members to be angularly spaced apart one from the other, at least two of the three substantially U-shaped frame members braceable when angularly spaced one from the other by a pair of releasable locking means each one comprising a horizontal locking segment pivotally attached at one end to an intermediate point along one side arm, a second locking segment pivotally attached at one end to an intermediate point along a sidearm angularly spaceable from the other side arm, each of the two locking segments at the end opposite that which is linked to the side arms pivotally linked one to the other, the horizontal locking segment and second locking segment braceable in an angularly spaced position so as to form a parallelogram laterally braced when the frame is erected by a diagonal locking segment extending angularly downwardly between the horizontal locking segment and the second locking segment, the diagonal locking segment composed of two subsegments each one attached pivotally at one end to one locking segment and at the other end pivotally connected one to the other, and; the pair of parallel side arms of each of at least two of the three frame members laterally braced apart by a removably securable horizontal frame member extending between each horizontal locking segment of the pair of releasable locking means, the removably securable horizontal frame member carrying two lateral support arms each one connected at one end to an intermediate point along the removably securable horizontal frame member and extending angularly downwardly to the side each one to surmount at the opposite end one of

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the two side arms of a substantially U-shaped frame member.

2. The pivotally collapsible self-supporting frame of claim 1, wherein the frame is constructed of aluminium.

3. The portable shelter of claim 1, wherein the shape of the pivotally collapsible self-supporting frame when pivotally erected, is defined by at least three substantially U-shaped frame members, wherein each substantially U-shaped frame member has a pair of parallel side arms spaced from each other at the same end by a top arm comprising the top arm at either end carrying a channel in which one end of each side arm is pivotally linked sufficient to permit each side arm to be positioned at a substantially right angle to the top arm and to be pivotable to a position substantially parallel and adjacent to the top arm.

4. The portable shelter of claim 1, wherein the at least three angularly spaced frame members when pivotally erected provide a first horizontal frame member, and a third vertical frame member, releasably locked in spaced relationship by a releasable locking means comprising a horizontal locking segment pivotally attached to the vertical side arm of the third vertical frame member at a point spaced from the ends thereof, a vertical locking segment pivotally attached to the horizontal side arm of the first horizontal frame member at a point spaced from the ends thereof, the horizontal locking segment carrying a vertically extending channel in which the end of the vertical locking segment is pivotally linked, at substantially a right angle when the frame is erected; a diagonal locking segment, composed of two subsegments each at one end attached pivotally to one locking segment and at the other end connected one to the other by a downwardly opening channel-shaped locking bar providing at least two spaced pivot points, the diagonal locking segment extending angularly downwardly when the frame is erected between the horizontal and vertical locking segments, rigidifies the releasable locking means so as to form a laterally braced parallelogram, the said releasable locking means being carried by the parallel side arms spaced on both sides of the frame.

5. The portable shelter of claim 4, wherein the diagonal locking segment is collapsible sufficient to permit the vertical locking segment and the horizontal locking segment comprising a laterally braced parallelogram to collapse to a substantially parallel position one to the other.

6. The portable shelter of claim 1, comprising a seat extending horizontally between and surmounting the at least two horizontal locking segments spaced on both sides of the frame, the seat carrying two lateral support arms each one connected at one end to an intermediate point along the seat for extending angularly downwardly to the side between the seat and the side member so as to substantially stabilize the lateral stability of the frame.

7. A portable shelter or tent enclosure comprising a pivotally collapsible self-supporting frame for supporting a fabric cover, the structure of the frame when pivotally erected defined by at least three substantially U-shaped frame members, each frame member having a pair of parallel side arms spaced from each other at the same end by a top arm sufficient to form a substantially U-shape, the top arm at either end carrying a channel in which one end of each side arm is pivotally linked sufficient to permit each side arm to be positioned at a substantially right angle to the top arm and to pivot to a

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position substantially parallel and adjacent to the top arm; two of the at least three substantially U-shaped frame members pivotally linked so as to define at least three planes, two of the at least three side arms spaced on each side of the at least three top arms, at their ends remote the top arm pivotally linked in at least two parallel spaced apart vertical channels, each channel providing at least two vertically spaced pivot points in which the end portions of at least two of the three side arms are vertically spaced and pivotally linked to each vertical channel, sufficient to permit at least two of the three substantially U-shaped frame members defining at least three planes to be spaceable from each other extending pivotally from pivot points provided by the at least two parallel spaced apart vertical channels so as to provide a frame when pivotally erected having three frame members angularly spaced from about a common line of pivot, the angularly spaced frame members comprising a first horizontal frame member, a third vertical frame member, and a second intermediate frame member angularly spaced between the first and third frame member; the first horizontal frame member and the third vertical member of the at least three angularly spaced frame members when pivotally erected, releasably locked in spaced relationship by a releasable locking means comprising a horizontal locking segment pivotally attached to the vertical side arm of the third vertical frame member at a point spaced from the end thereof, a vertical locking segment pivotally attached to

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the horizontal side arm of the first horizontal frame member at a point spaced from the ends thereof, the horizontal locking segment carrying a vertically extending channel in which the end of the vertical locking segment is pivotally linked, at substantially a right angle when the frame is erected; a diagonal segment, composed of two subsegments each at one end attached pivotally to one locking segment and at the other end connected one to the other by a downwardly opening channel-shaped locking bar providing at least two spaced pivot points, the diagonal locking segment extending angularly downwardly when the frame is erected, between the horizontal and vertical locking segments, rigidifies the releasable locking means so as to form a laterally braced parallelogram, the said releasable locking means being carried by the parallel side arms spaced on both sides of the frame; and, a removable seat extending between and surmounting the two horizontal locking segments spaced on both sides of the frame when the frame is erected, the seat carrying two lateral support arms each one connected at one end to an intermediate point along the seat and extending angularly downwardly to the side each one to surmount at the opposite end one of the two side arms of the horizontal frame member spaced on both sides of the frame, whereby when the seat is connected to the erected frame, the seat provides a brace giving the structure lateral stability.

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**United States Patent** [19][11] **Patent Number: Des. 331,441****Choi**[45] **Date of Patent: \*\* Dec. 1, 1992**[54] **TENT**[75] **Inventor: Kye S. Choi, Seoul, Rep. of Korea**[73] **Assignee: Banpo Corporation, Seoul, Rep. of Korea**[\*\*] **Term: 14 Years**[21] **Appl. No.: 683,747**[22] **Filed: Apr. 10, 1991**[52] **U.S. Cl. .... D21/253**[58] **Field of Search .... D21/253, 254; 135/90, 135/102, 104, 105, 98, 99; D25/16, 56**[56] **References Cited****U.S. PATENT DOCUMENTS**

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*Primary Examiner*—Bernard Ansher*Assistant Examiner*—R. Barkai*Attorney, Agent, or Firm*—Jerry Cohen; Marvey Kaye[57] **CLAIM**

The ornamental design for a tent, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective view of a tent showing my new design;

FIG. 2 is a sectional view thereof taken along the line A—A of FIG. 6;

FIG. 3 is a bottom plan view thereof;

FIG. 4 is a right side elevational view thereof, the side opposite being identical;

FIG. 5 is a top plan view thereof; and,

FIG. 6 is a front elevational view thereof, the rear elevational view being identical.

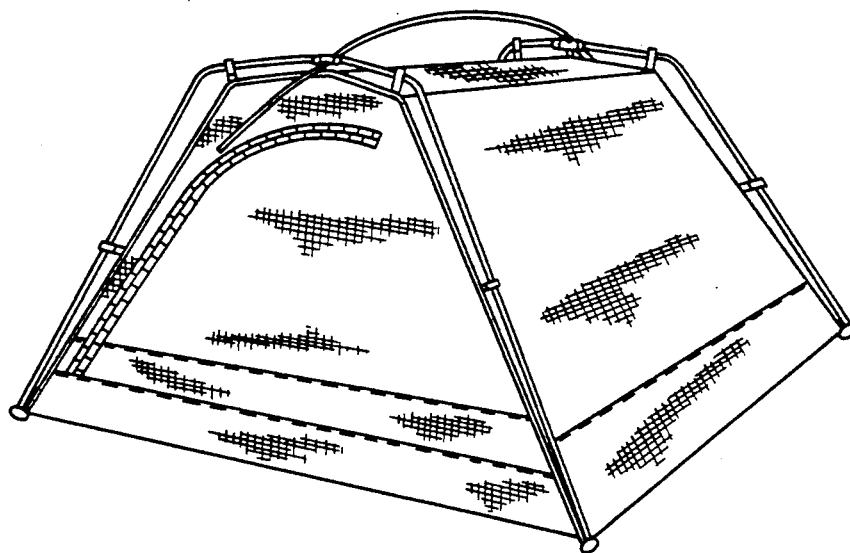


FIG. 1

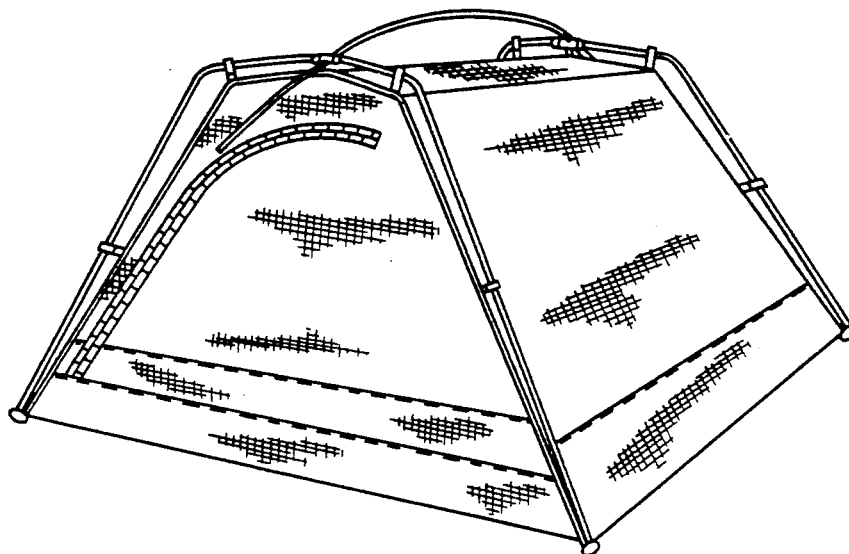


FIG. 2





FIG. 3

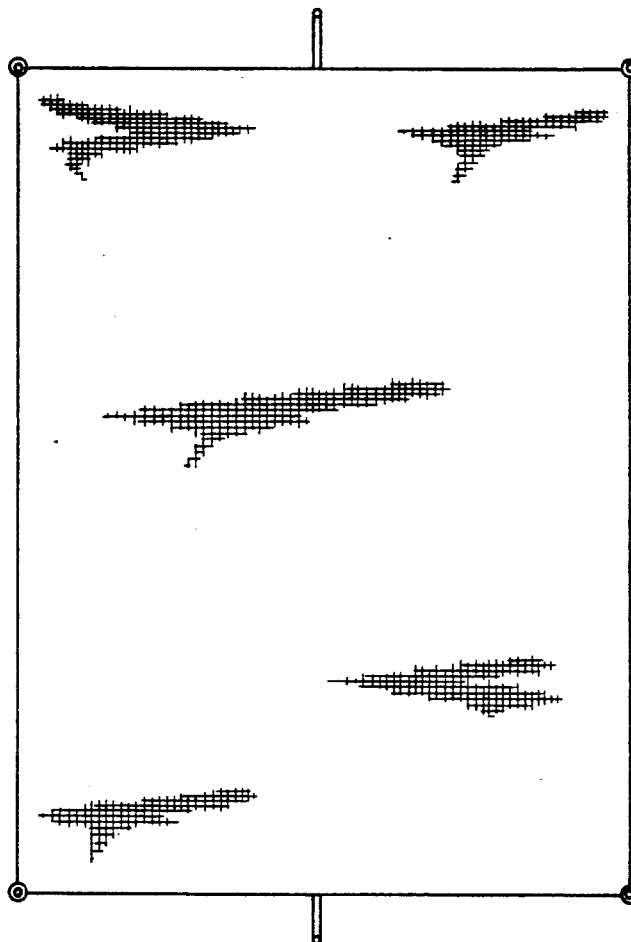


FIG. 4

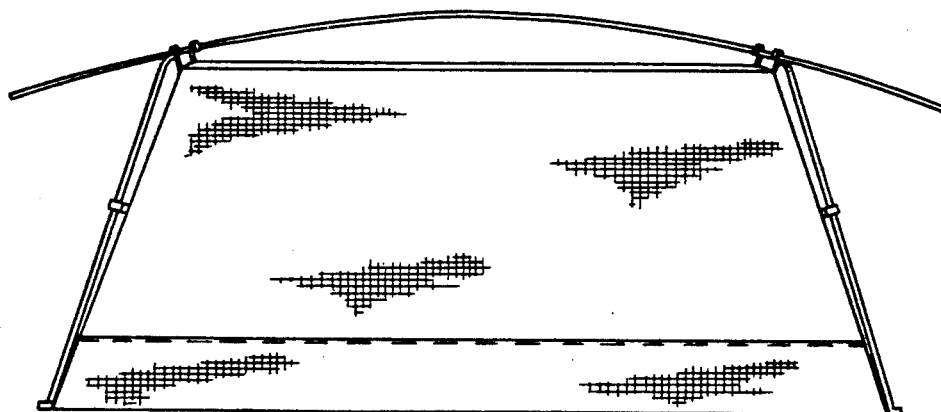




FIG. 5

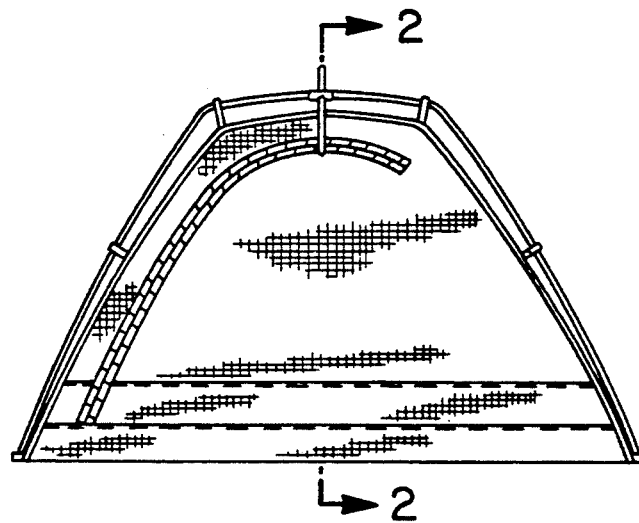
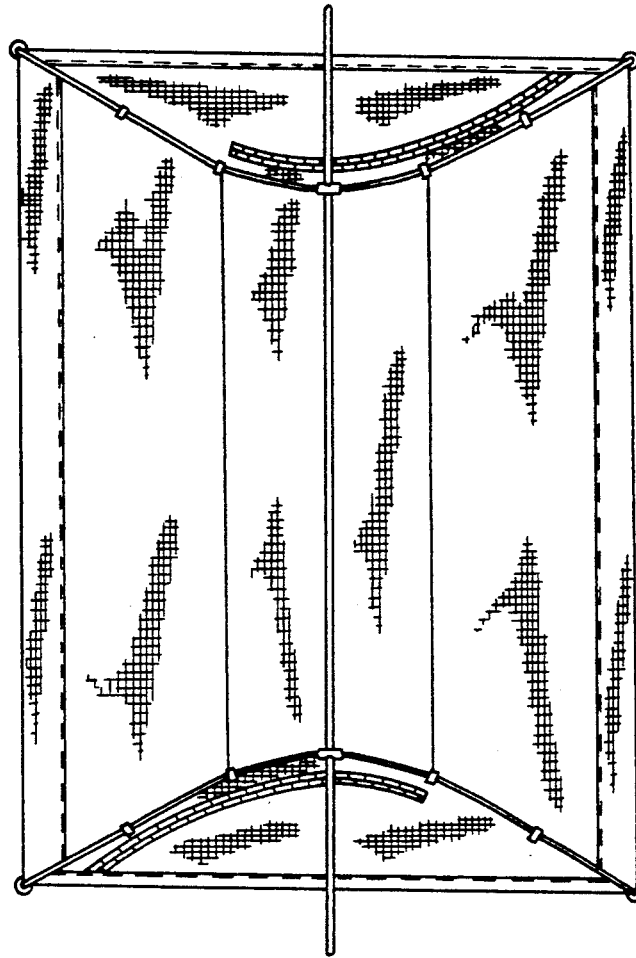


FIG. 6



US00D332986S

# United States Patent [19]

Choi

[11] Patent Number: Des. 332,986

[45] Date of Patent: \*\* Feb. 2, 1993

[54] TENT

[75] Inventor: Kye S. Choi, Seoul, Rep. of Korea

[73] Assignee: Banpo Corporation, Seoul, Rep. of Korea

[\*\*] Term: 14 Years

[21] Appl. No.: 648,399

[22] Filed: Jan. 30, 1991

[52] U.S. Cl. .... D21/253

[58] Field of Search ..... D21/253, 254; 135/90,  
135/102, 104, 105, 98, 99; D25/16, 56

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Primary Examiner—Bernard Ansher

Assistant Examiner—R. Barkai

Attorney, Agent, or Firm—Jerry Cohen; Harvey Kaye

## [57] CLAIM

The ornamental design for a tent, as shown and described.

## DESCRIPTION

FIG. 1 is a perspective view of a tent showing my new design;

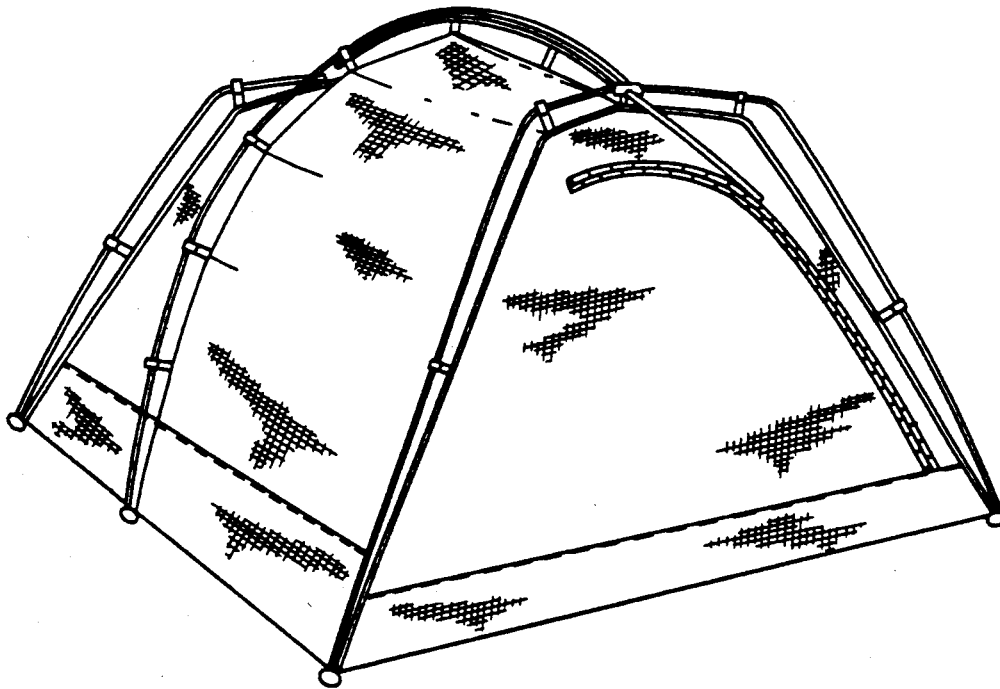
FIG. 2 is a top plan view thereof;

FIG. 3 is a front elevational view thereof;

FIG. 4 is a bottom plan view thereof;

FIG. 5 is a right side elevational view thereof, the side opposite being a mirror image thereof; and,

FIG. 6 is a sectional view thereof taken along the line 6—6 of FIG. 2.

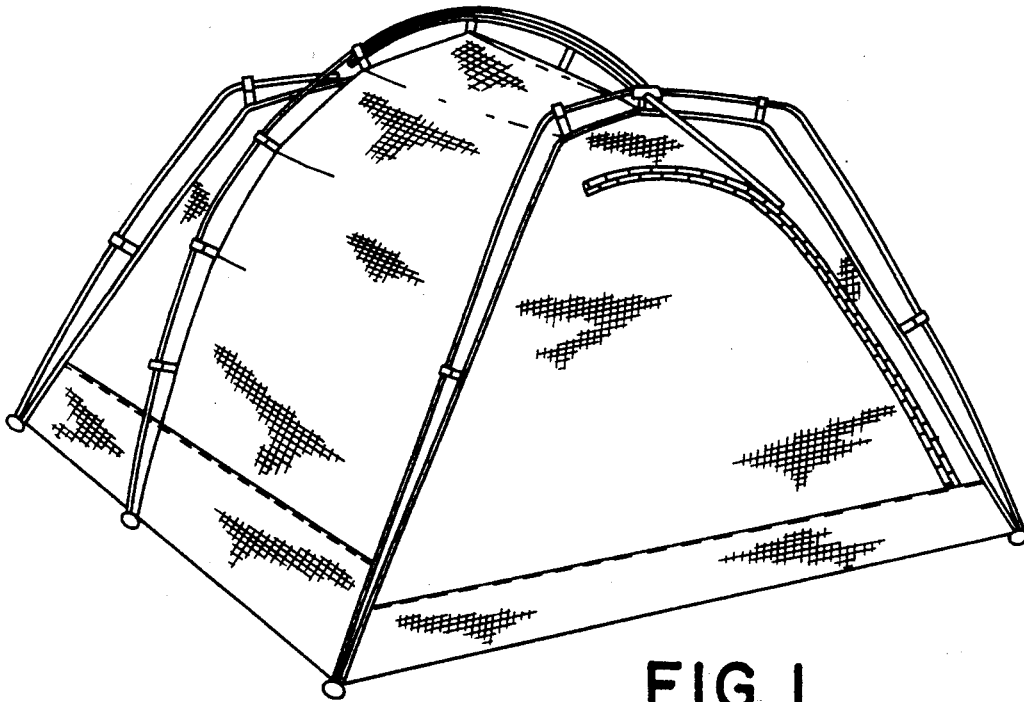


**U.S. Patent**

**Feb. 2, 1993**

**Sheet 1 of 4**

**Des. 332,986**



U.S. Patent

Feb. 2, 1993

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Des. 332,986

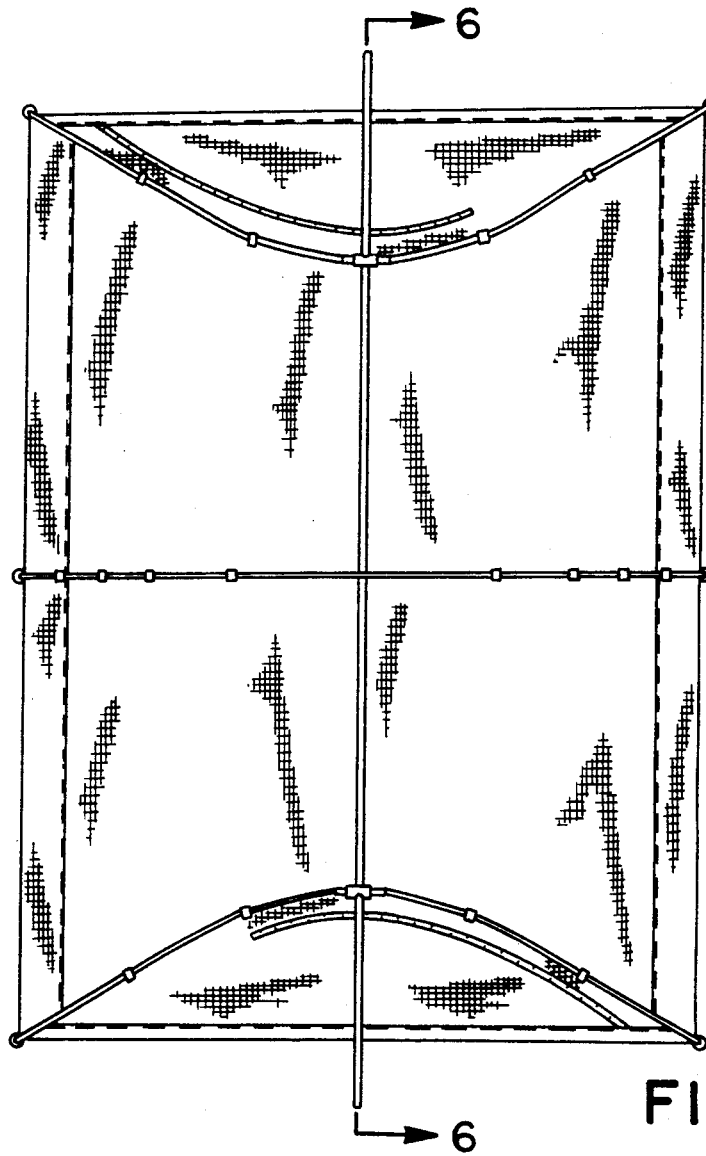


FIG. 2

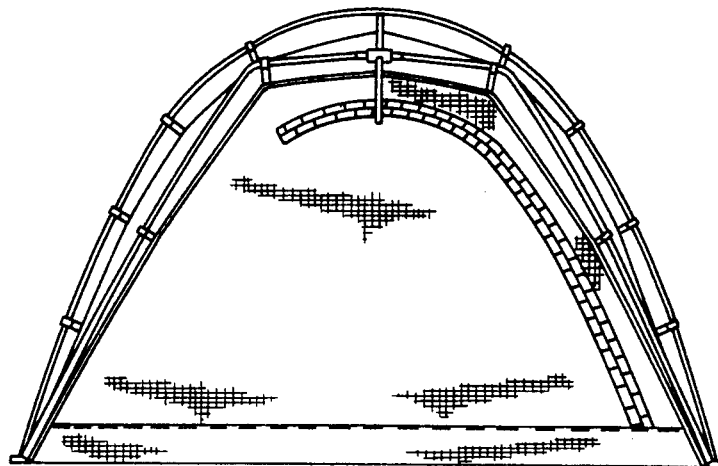


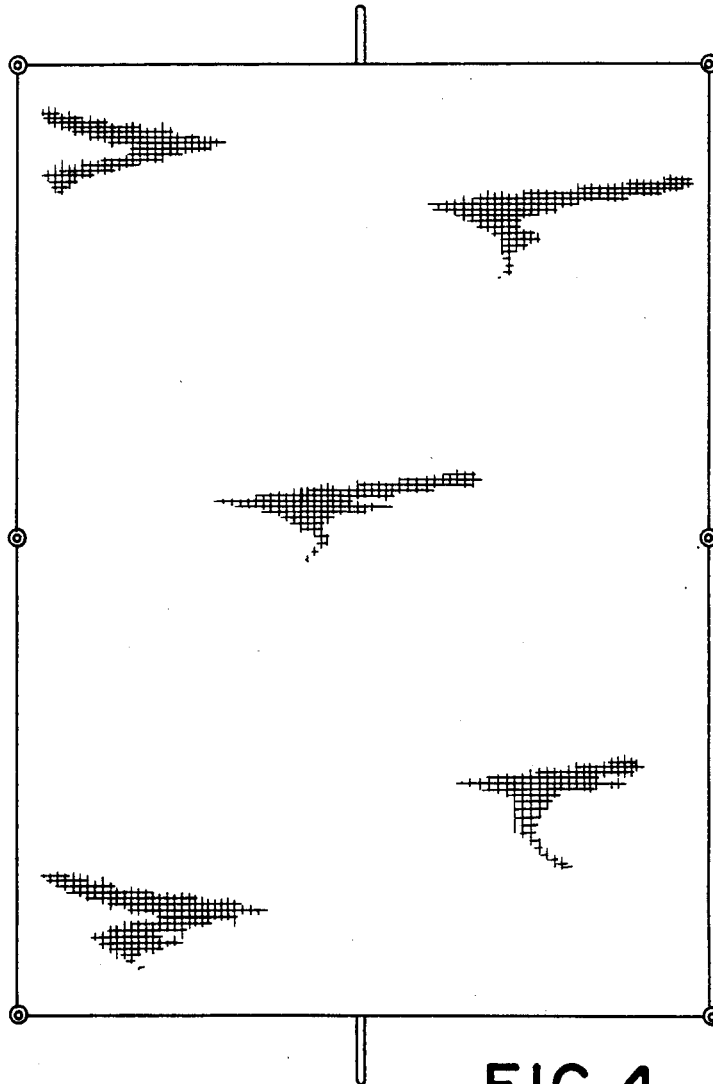
FIG. 3

**U.S. Patent**

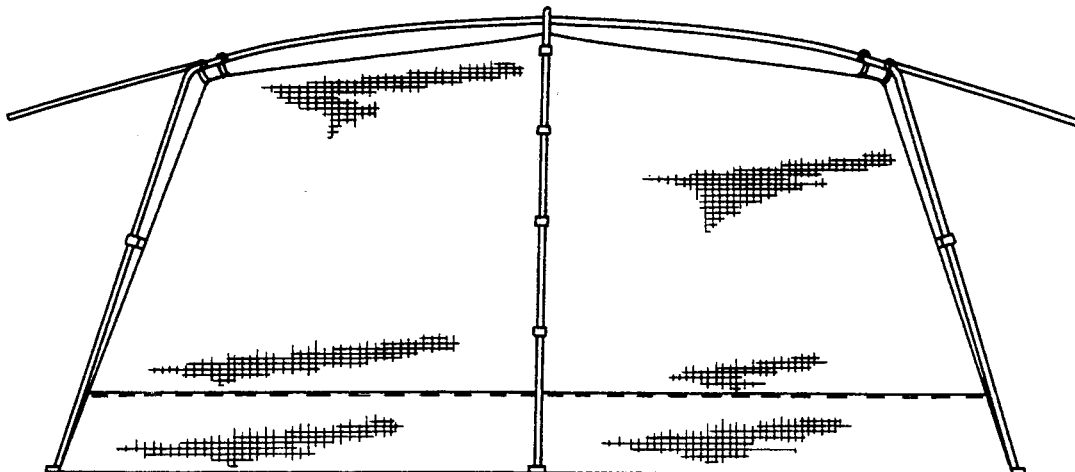
**Feb. 2, 1993**

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**FIG. 4**



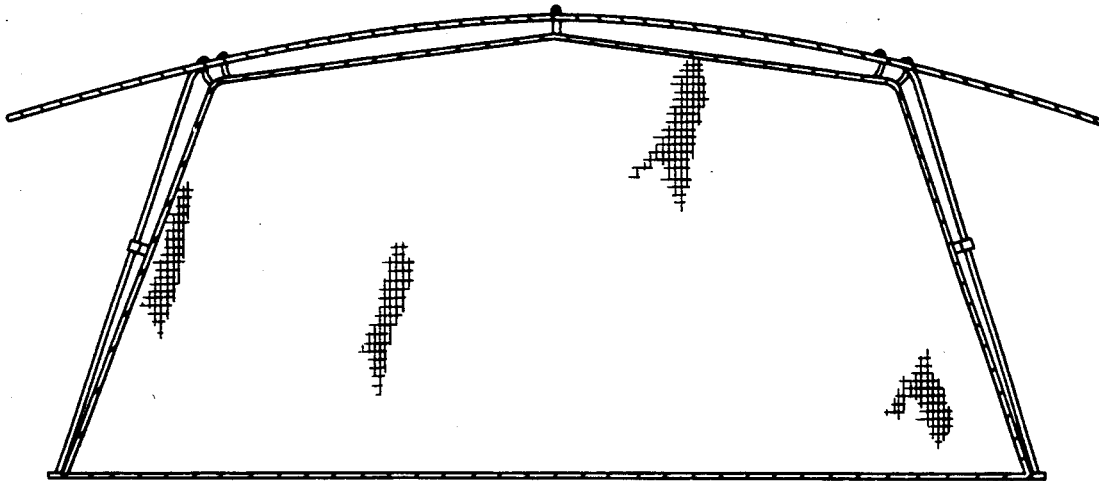
**FIG. 5**

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Feb. 2, 1993

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**Des. 332,986**



**FIG. 6**



US00D358191S

**United States Patent** [19][11] **Patent Number: Des. 358,191****November**[45] **Date of Patent: \*\* May 9, 1995**[54] **TENT**[76] **Inventor:** Carl J. November, 70 Beach Rd.,  
P.O. Box 1728, W. Hampton Beach,  
N.Y. 11978[\*\*] **Term:** 14 Years[21] **Appl. No.:** 15,157[22] **Filed:** Nov. 9, 1993[52] **U.S. Cl.** ..... **D21/253**[58] **Field of Search** ..... D21/114, 118, 253, 242-244;  
D25/13, 19, 56; 446/423, 476, 478; 135/89, 101,  
103, 104, 105, 106, 100, 115, 900, 902; 52/2-18;  
482/35, 36[56] **References Cited****U.S. PATENT DOCUMENTS**

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*Primary Examiner*—Prabhakar G. Deshmukh*Assistant Examiner*—R. Barkai*Attorney, Agent, or Firm*—Michael I. Chakansky[57] **CLAIM**

The ornamental design for a tent, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective view of the tent taken from a front thereof;

FIG. 2 is a top view thereof;

FIG. 3 is a front view thereof;

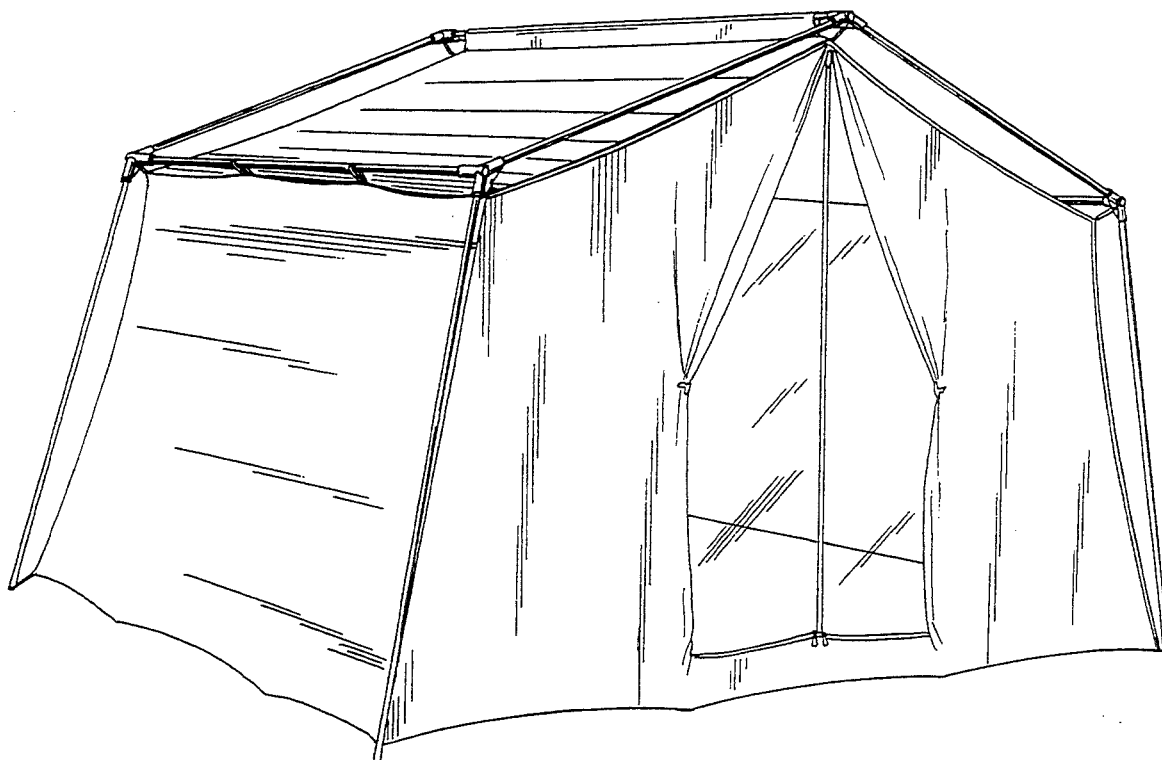
FIG. 4 is a right side view thereof, the left side being identical thereto;

FIG. 5 is a rear view thereof showing the window flap rolled upward;

FIG. 6 is a bottom view thereof;

FIG. 7 is a front view thereof with the front door closed, and,

FIG. 8 is a rear view thereof with the window flap closed.

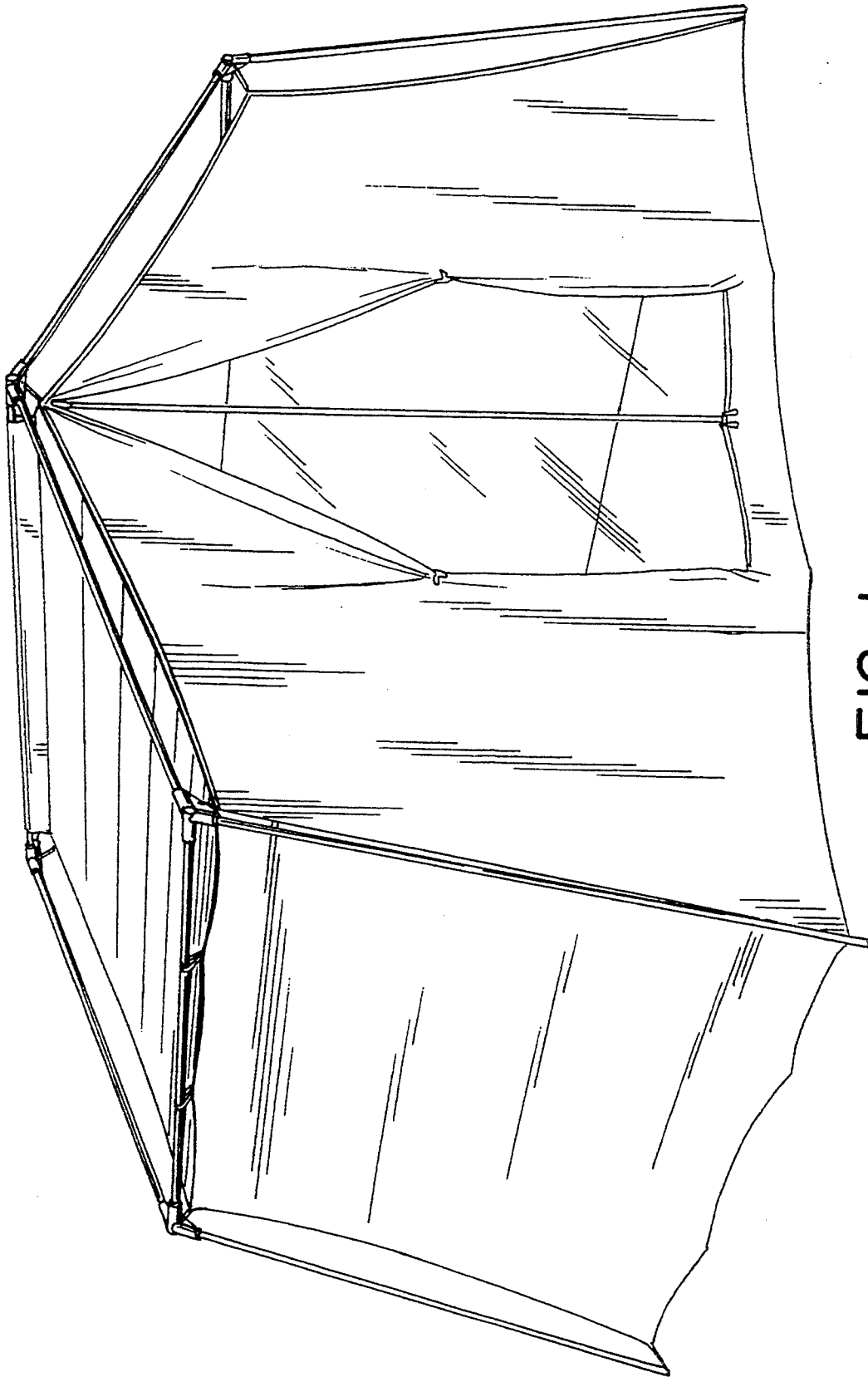


**U.S. Patent**

**May 9, 1995**

**Sheet 1 of 5**

**Des. 358,191**



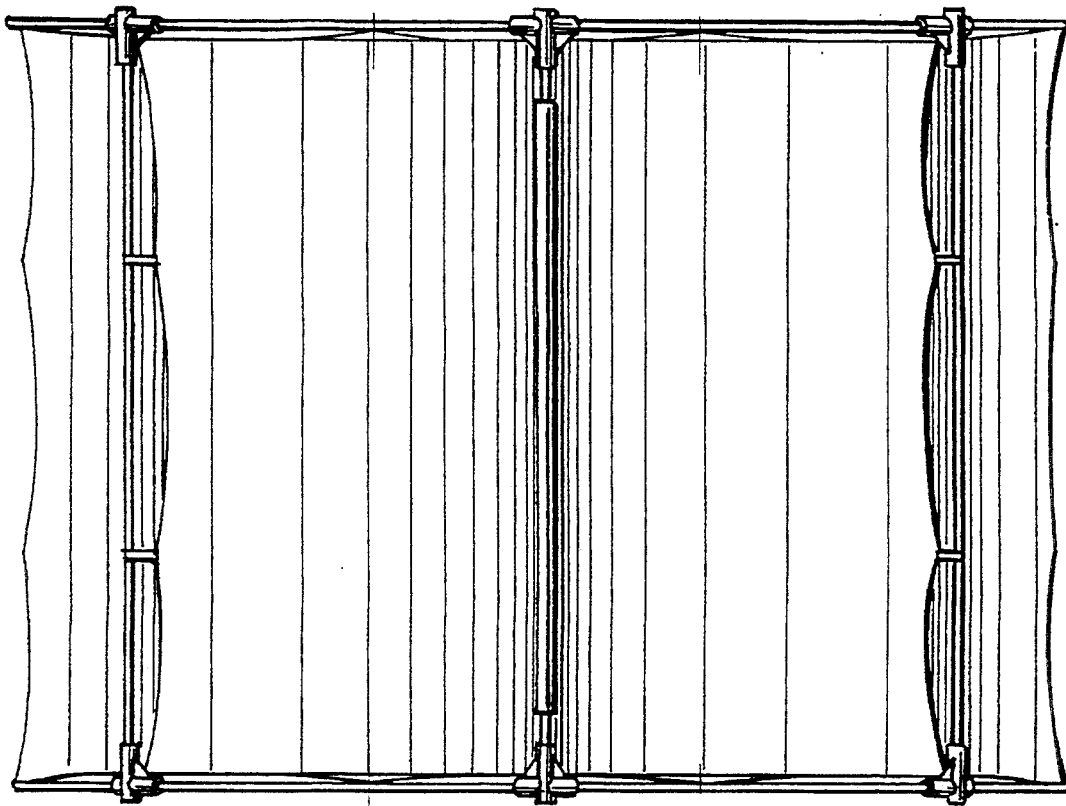
**FIG. 1**

**U.S. Patent**

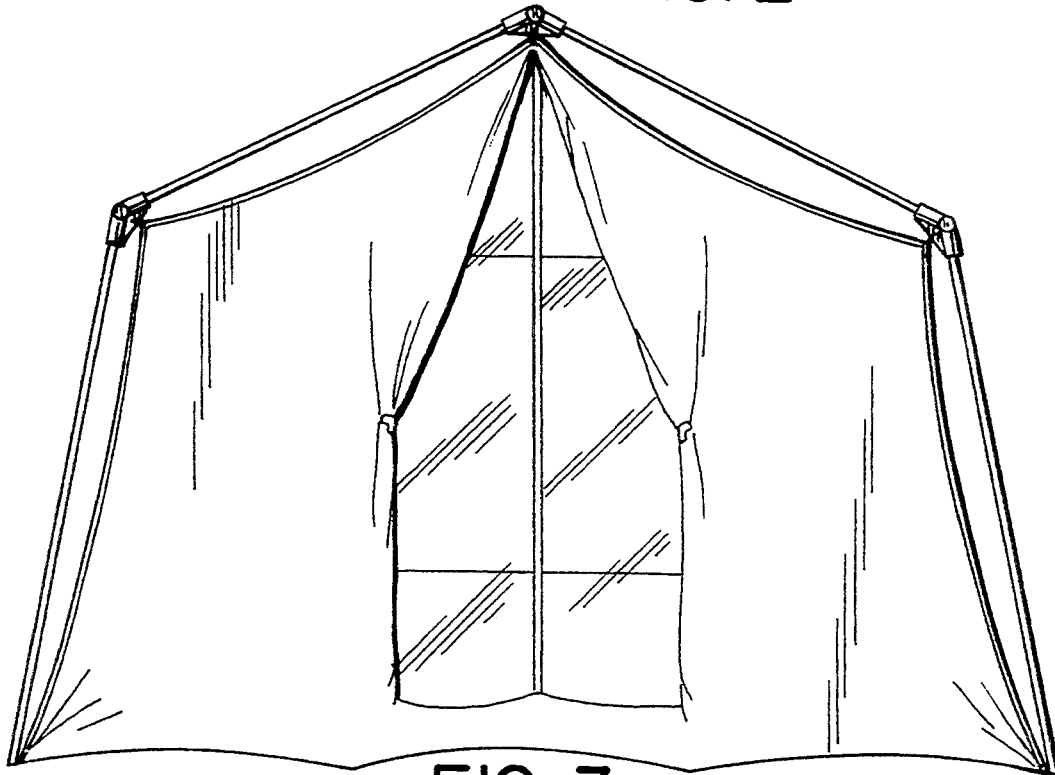
May 9, 1995

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**Des. 358,191**



**FIG. 2**



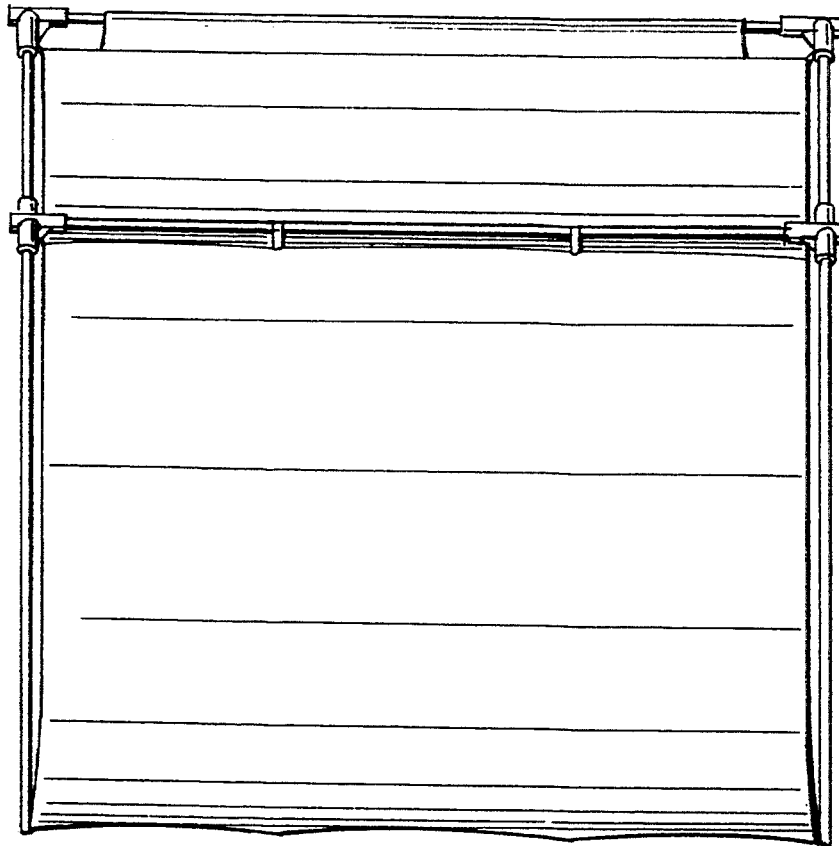
**FIG. 3**

**U.S. Patent**

**May 9, 1995**

**Sheet 3 of 5**

**Des. 358,191**



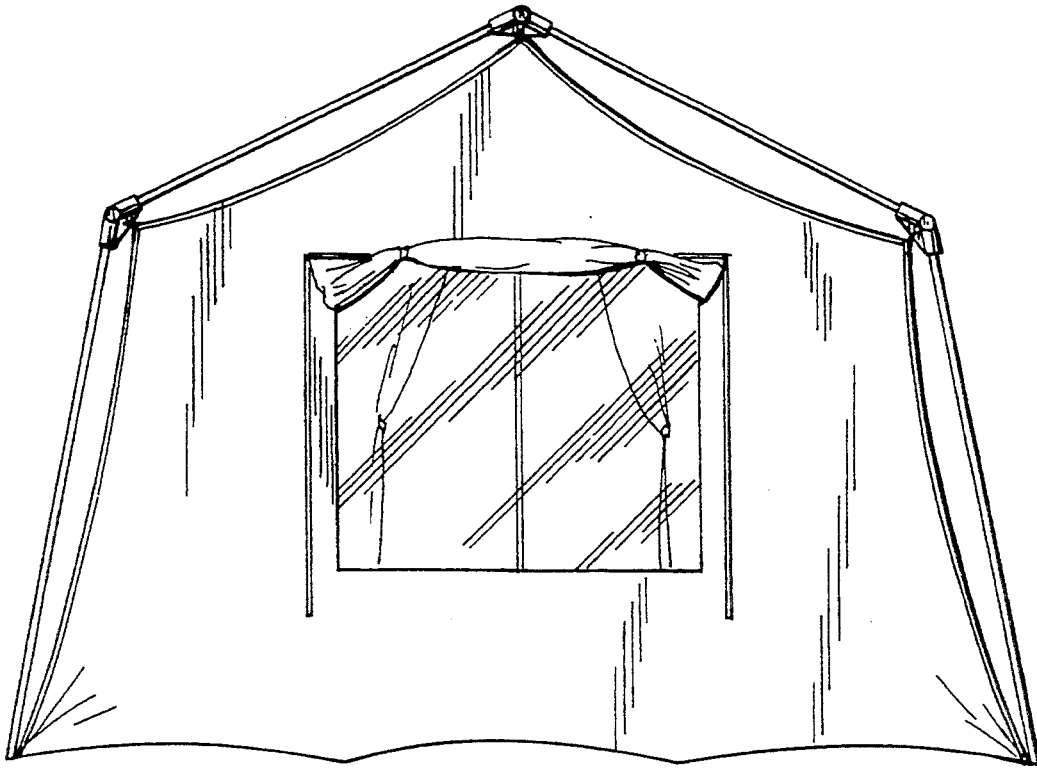
**FIG. 4**

**U.S. Patent**

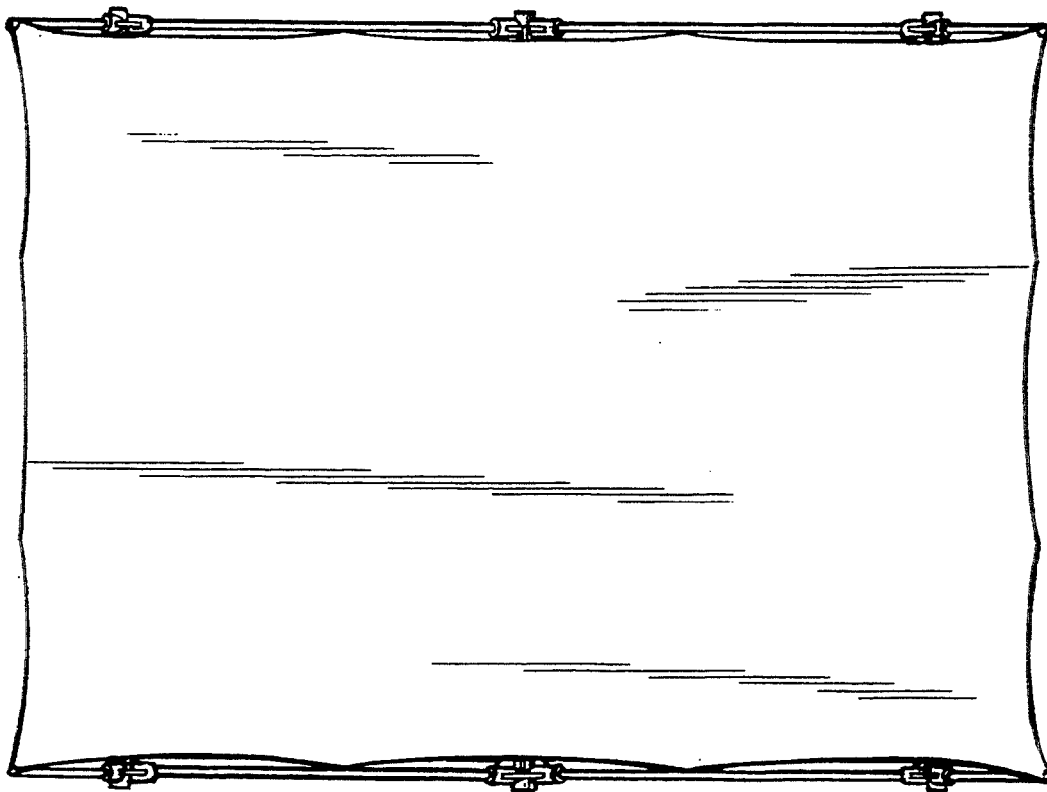
**May 9, 1995**

**Sheet 4 of 5**

**Des. 358,191**



**FIG. 5**



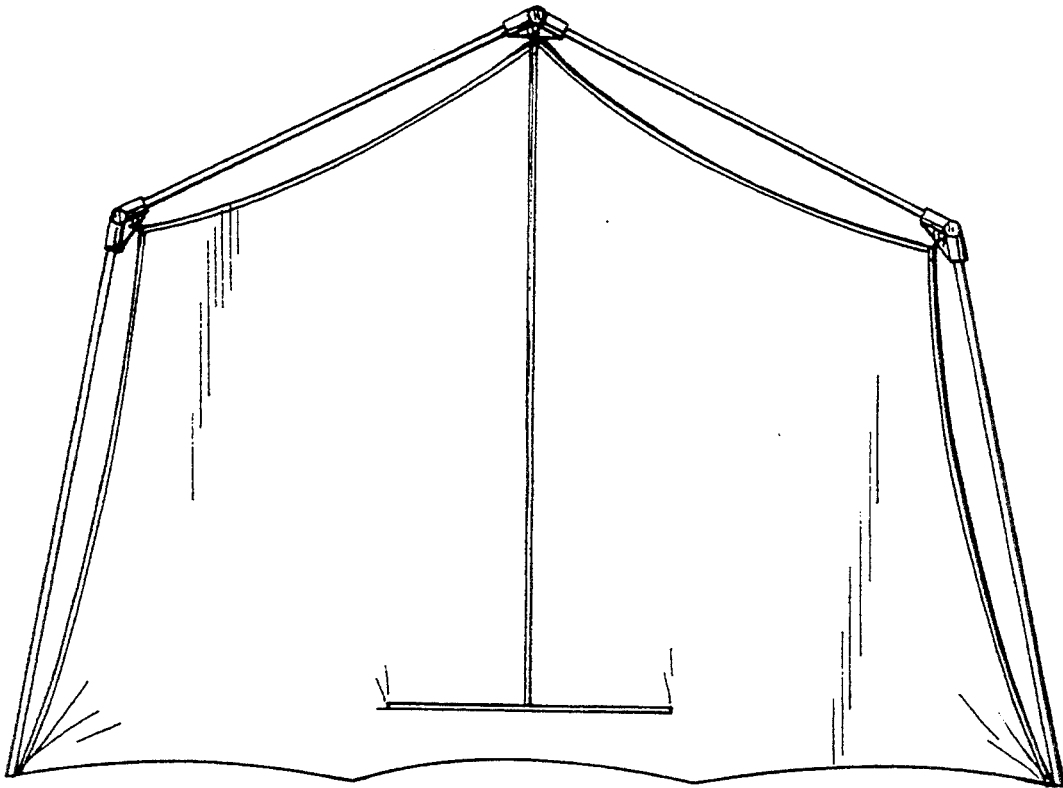
**FIG. 6**

**U.S. Patent**

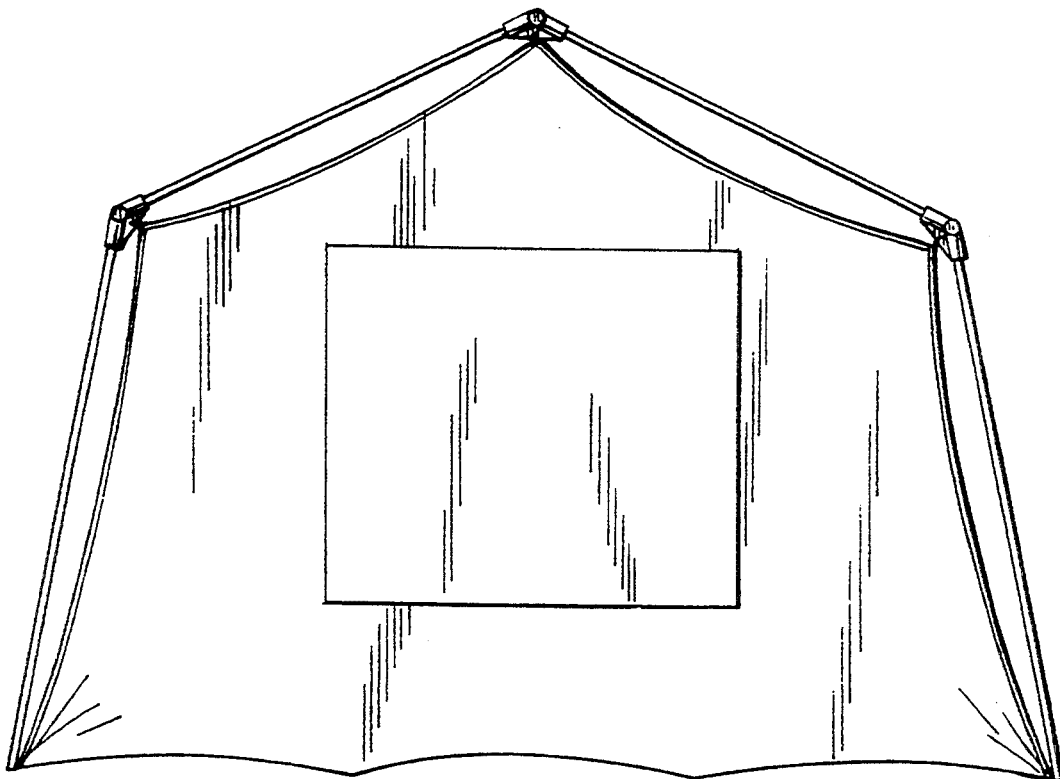
**May 9, 1995**

**Sheet 5 of 5**

**Des. 358,191**



**FIG. 7**



**FIG. 8**





US005372156A

**United States Patent** [19][11] **Patent Number:** 5,372,156**Kern**[45] **Date of Patent:** Dec. 13, 1994[54] **BICYCLE SUPPORTED TENT**

4,930,557 6/1990 Lohse ..... 135/88

[75] **Inventor:** Wolfgang Kern, Triberg, Germany**FOREIGN PATENT DOCUMENTS**[73] **Assignee:** Mehler Camping GmbH, Fulda, Germany

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[21] **Appl. No.:** 118,994[22] **Filed:** Sep. 9, 1993[30] **Foreign Application Priority Data**

Sep. 10, 1992 [DE] Germany ..... 9212209[U]

[51] **Int. Cl.<sup>5</sup>** ..... B60P 3/32; E04H 15/02[52] **U.S. Cl.** ..... 135/88.03; 135/87; 280/288.4; 296/136[58] **Field of Search** ..... 135/880 R, 907, 116, 135/117, 87; 280/288.4; 296/77.1, 136[56] **References Cited****U.S. PATENT DOCUMENTS**

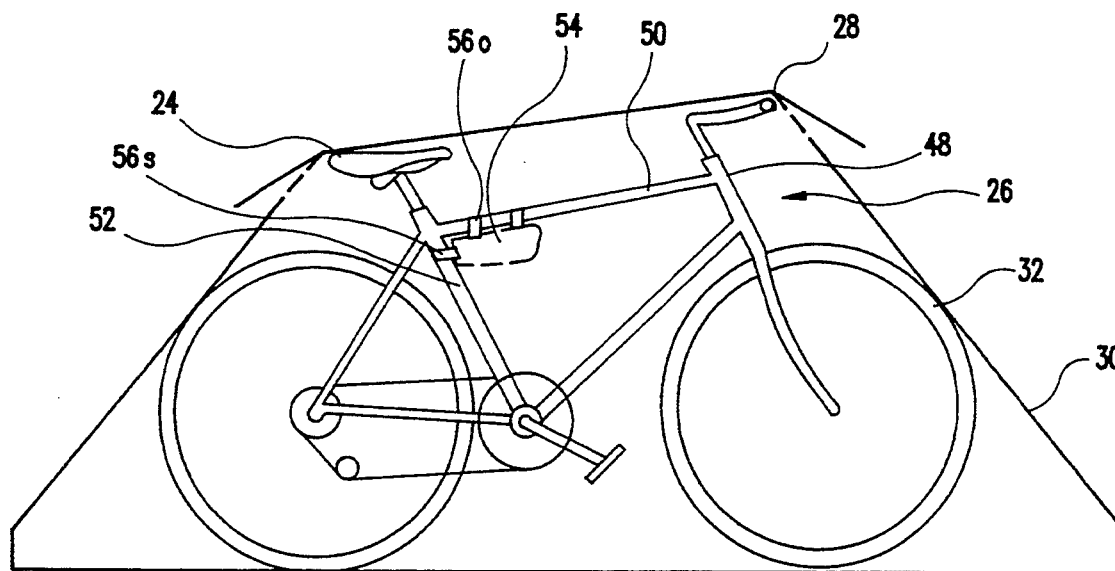
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4,114,633 10/1978 Herbez ..... 135/88

*Primary Examiner*—Carl D. Friedman*Assistant Examiner*—Wynn E. Wood*Attorney, Agent, or Firm*—Whitham, Curtis, Whitham & McGinn[57] **ABSTRACT**

A tent, comprising an awning, is supported by a bicycle arranged in a principal plane to form at least one crest line. The bicycle is spanned on both sides of the principal plane by spanning means being anchored in the ground and being attached to said awning, particularly by means of cords and tent pegs.

**6 Claims, 4 Drawing Sheets**

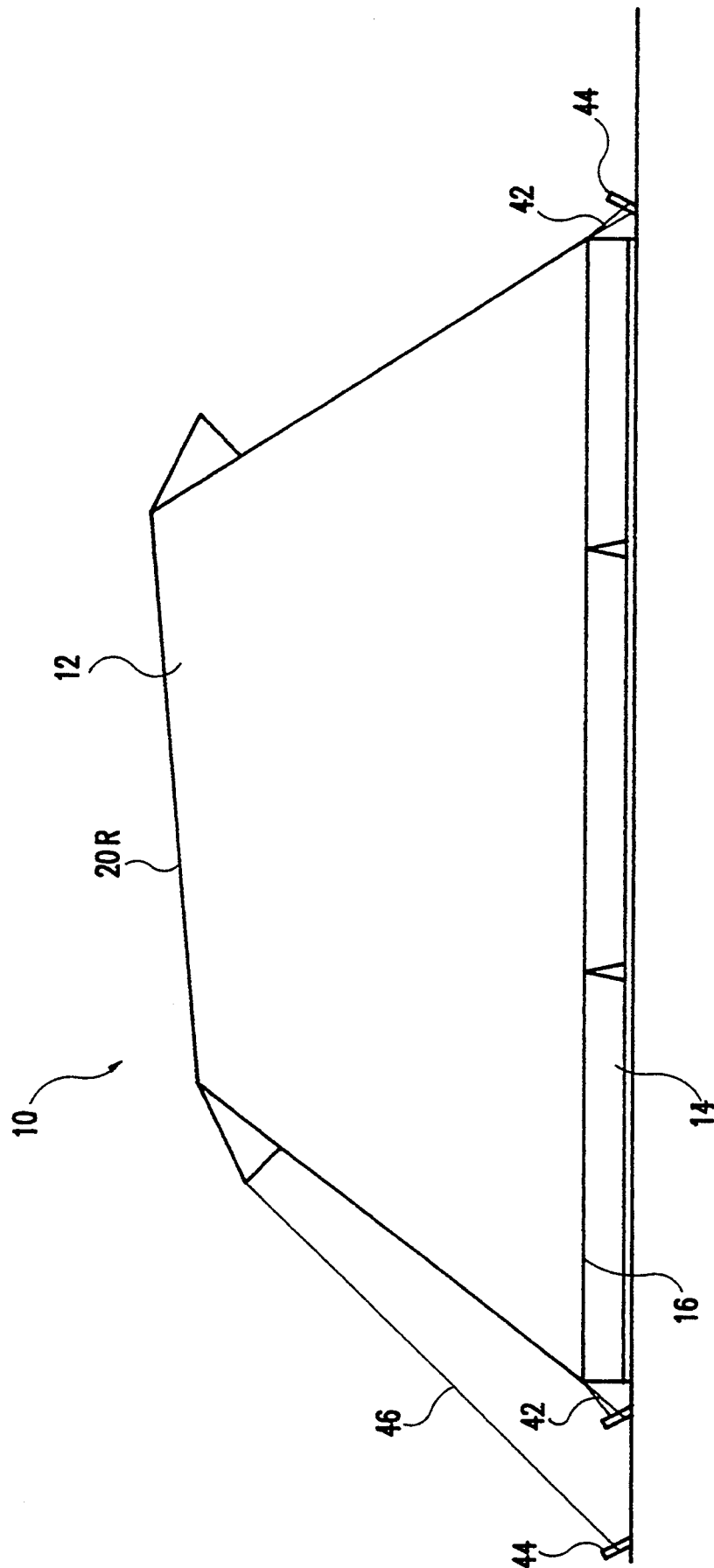


FIG. 1

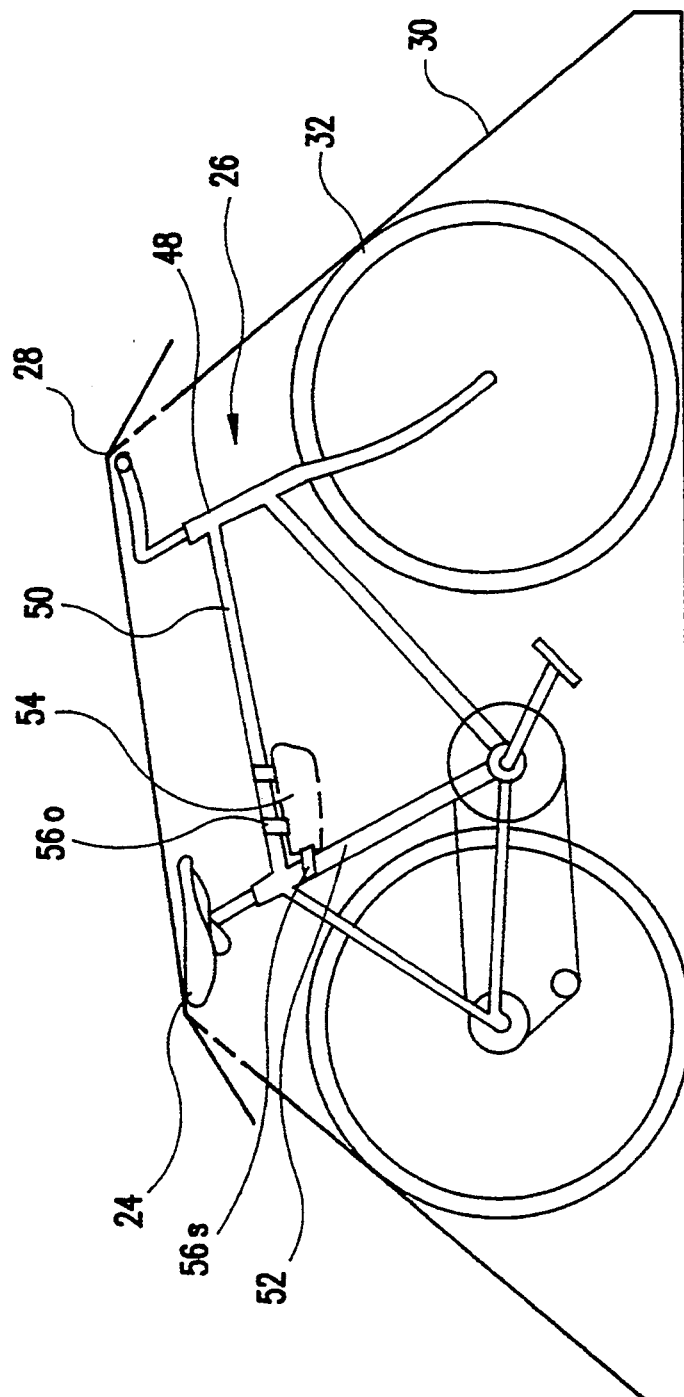


FIG. 2

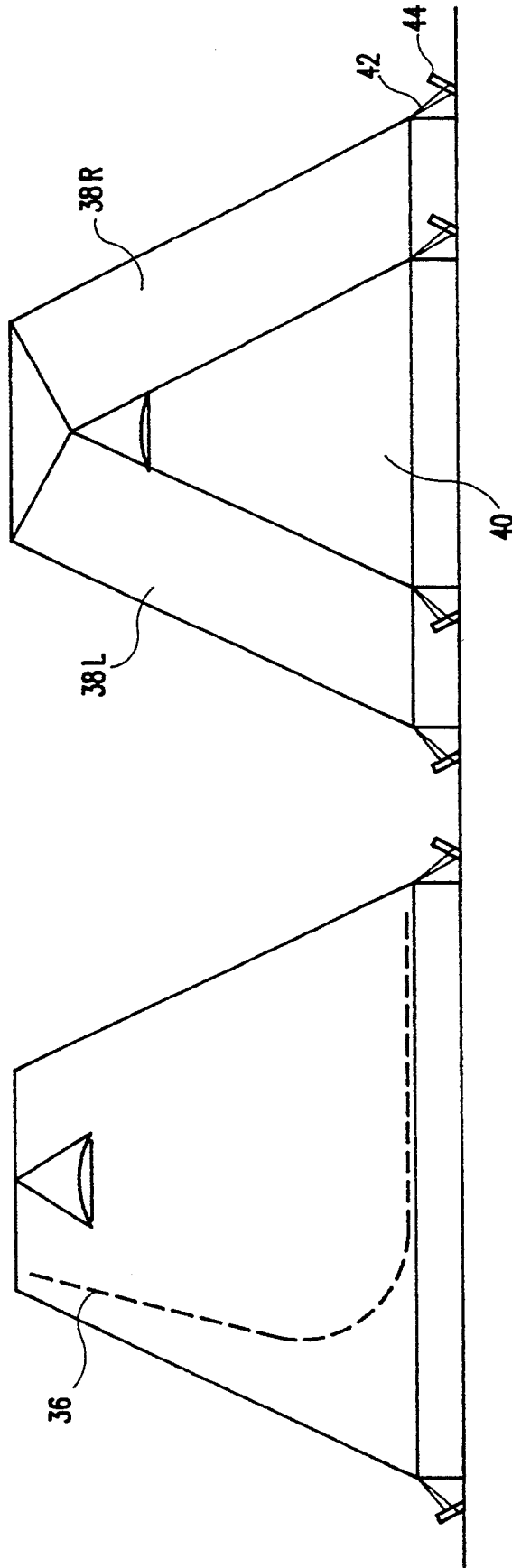
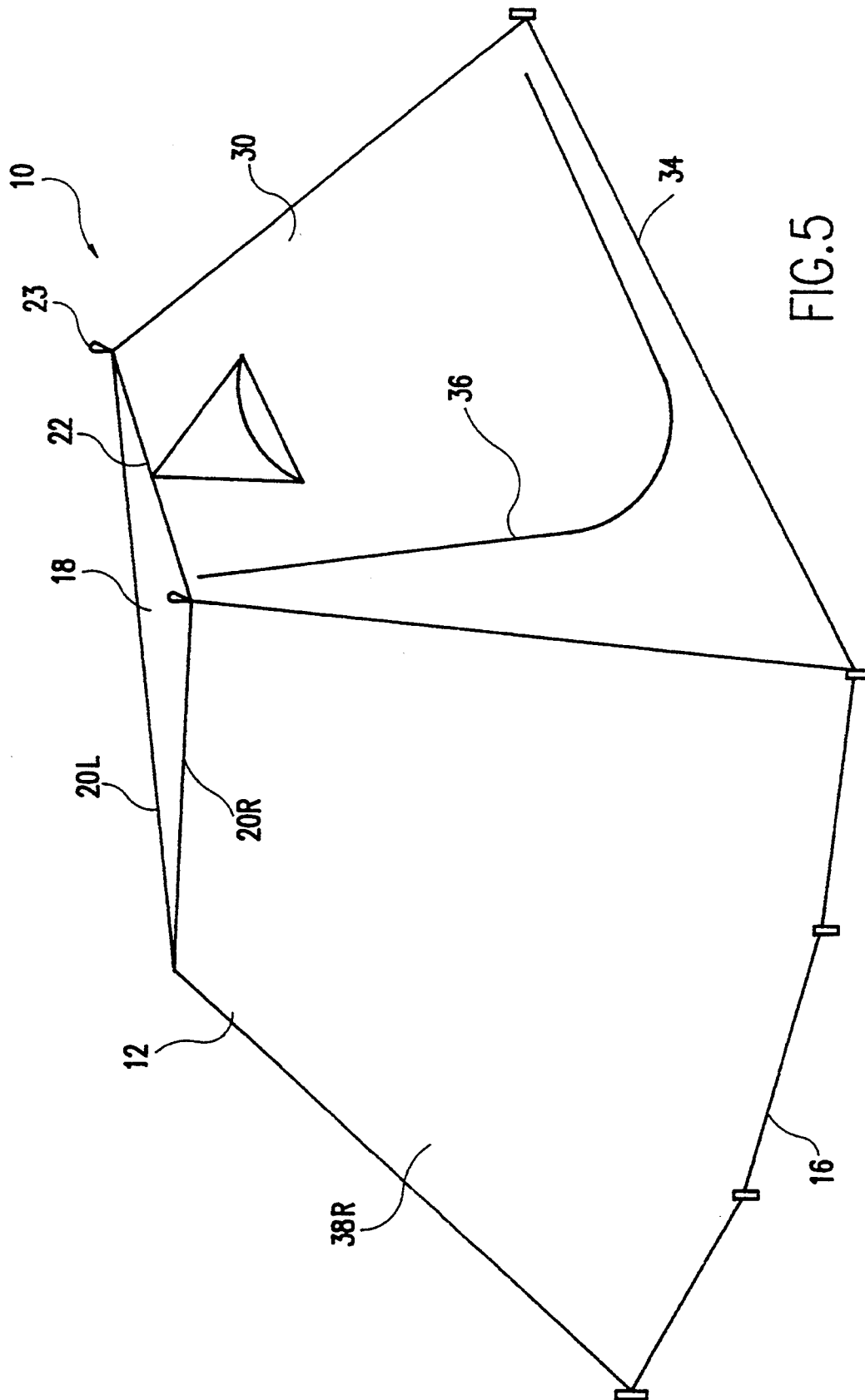


FIG. 4

FIG. 3



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**BICYCLE SUPPORTED TENT****BACKGROUND OF THE INVENTION****1. Field of the Invention**

The present invention generally relates to a tent and, more particularly to a new tent that is especially designed for the needs of a bicyclist or mountain biker.

**2. Description of the Prior Art**

Light weight tents designed for backpackers are well known in the art. In known tents, the supporting rods are often two vertically arranged poles, e.g. in form of aluminum tubes being composed of discrete tube segments. The assembled poles are spanned to the ground by means of cords and pegs driven into the soil. In some tents the two vertical poles are linked by a crest rod. In both cases during construction of the tent a compromise has to be found with respect to the rod assembly between the demand that the built-up tent should stand stable under all weather conditions, e.g. high wind speeds, and the demand that the tent should require only a small packing volume and be of low weight.

Known rod assemblies have been unsatisfying, particularly under the last mentioned points of view, since the wall thickness and dimensions required to create a stable tent lead to a high weight. During transportation of a packed tent on a bicycle it is furthermore disadvantageous that the pole segments that comprise the rod assembly cannot be made of a very short length, because the higher number of joints required within the rod assembly weakens the structure and the time needed to set up the tent rises in an unreasonable relation. Therefore, bulky and awkwardly shaped parts have to be attached to and carried on the bicycle.

Generally, it is the object of any tent designer to construct a particular stable structure at a weight as low as possible as well as to minimize the volume of the packed tent as much as possible. This holds true particularly in all those cases where the tent has to be carried under extreme conditions by human muscle forces, e.g. in mountain bike hiking. On a bicycle storing space is very limited and for obvious reasons a tent to be carried on a bicycle should be as light weighted as possible.

Known from British patent application GB 2 228 500 is a tent using the frame of a bicycle and an air pump carried on said bicycle as supporting means or as a substitute for an rod assembly. According to this state of the art the bicycle, which should be of the type having a common diamond frame comprising a horizontal crossbar, is to be arranged perpendicularly to the principal plane of the erected tent and the pump is used as an additional means to support the tent awning in the principal plane of the erected tent. A drawback of this tent is the fact that it is very low due to the crossbar of the bicycle being the highest point and due to the fact that a standard air pump designed to be carried on the frame of a bicycle is too short to be used in a satisfying manner as a tent pole. Beside the low height of the crest lines of such a tent it turned out to be disadvantageous that the bicycle used as a substitute for a rod assembly is spanned indirectly via said bicycle pump and therefore insufficiently at least towards one side, so that the resulting shelter structure is comparatively unstable, particularly at high wind speeds.

Another drawback of the described state of the art is that the bicycle is left uncovered and is therefore sub-

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ject to corrosion, particularly when the weather is rainy.

**SUMMARY OF THE INVENTION**

It is therefore an object of the present invention to improve a known tent and to provide a new tent that is especially designed for the needs of a bicyclist or mountain biker by providing a small packing, light weight tent which does not require bulky, heavy rods or poles.

It is a further object of the invention to provide a tent offering a high crest line without the use of an additional rod assembly, so that an average person can move inside the tent relatively unhampered.

Furthermore, the tent to be created shall be useable with any frame of a bicycle, particularly with a relatively new type of bicycle, the so called "mountain-bike".

The inventive tent is characterized in that a bicycle is used as a rod assembly in such a manner that the tent awning is supported by the saddle and at least two points of the handlebar, thereby forming two crest lines.

Preferably, the awning is cut and spanned in such a way that two crest lines are formed starting from the seat engaging surface on the saddle and extending in a V-like shape to the two seat bearing points on the handlebar of the bicycle, whereby the awning engages the handlebar preferably completely and is spanned across the front wheel of the bicycle thereby forming an apse. In that manner, a very stable structure is provided which can be erected by the bicyclist within a few minutes without the need to carry awkward shaped, bulky rods or the like.

In a preferred embodiment of the invention, the tent comprises furthermore a ground sheet, the ground sheet being connected with the awning, preferably by being sewed to the edges of the awning facing the ground or in a different manner. That way a tent is provided that not only provides shelter against rain and wind, but also protects against ground humidity.

The single piece embodiment of the awning, essentially forming the roof part, and the ground sheet provides furthermore the possibility to attach spanning loops to the seam extending on ground level when the tent is in its erected state. The spanning loops allow to better pass the span forces into the fabric of the tent thereby making a stable spanning of the tent easier. Furthermore, loops or sewed on handling straps can be provided at the points where the awning touches the handlebar, thereby allowing the awning to be aligned more easily during set up of the tent.

The invention furthermore relates to a particular suitable awning for erecting a tent in the described manner, using a bicycle as a supporting means.

According to the invention, with respect to the cut and lay out of the seams, such an awning is designed in such a manner that a three dimensional cover is formed, this cover being sized to fit over a common bicycle and defining a trapezoidal area on the awning by seams, the bottom edge of which facing the ground being between 52 and 72 inches long, while the upper edge having essentially the width of a common bicycle handlebar, i.e. being between 20 and 28 inches long. This trapezoidal area, forming in an erected state of the tent an apse being spanned over the front wheel of the bicycle, comprises an entrance slit, the slit being preferably closeable by means of zip or a Velcro™ band.

According to the invention, preferably the area defined by the two crest lines extending from the saddle to



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the engagement points on the handlebar is reinforced by a second layer of fabric, or is defined by seams coinciding with the crest lines. The reinforced area or area defined by seams, respectively, has the form of an isosceles triangle, whereby the seam extending in the erected state over the handlebar has a length between 20 inches and 28 inches and at the ends—already mentioned—loops or handling straps consisting of a plastic band can be attached. The height of the isosceles triangle, in which also a seam can be arranged, is preferably between 22 and 52 inches.

Advantageously, the tent awning is furthermore linked to a ground sheet along the edge facing the ground in an erected state of the tent. Referring to this embodiment, the expression awning can designate the whole resulting, sack like arrangement. To erect the tent, the bicycle is stuffed rear wheel first into the sack-like awning through said entrance slit being provided in said trapezoidal area, and then the bicycle is spanned and secured by means of cords attached to the various spanning loops and tent pegs being secured to the ground.

Another asset of the tent according to the invention is that the bicycle not only has a function as rod arrangement but at the same time also is protected against theft.

Preferably the tent or the awning is made of a silicon coated polyester fabric. Using such a fabric results in a total weight of the awning plus the ground sheet of less than 1 kg (2.2 pds) provided the bicycle has normal dimensions.

The inventive tent preferably comes with a special designed packing sack, having three Velcro™ buckles, by means of which the folded awning can be attached to the rear triangle of the frame of a mountain bike. The packing sack comprises preferably a cylindric form, whereby to Velcro™ buckles are provided in a seam coinciding with a surface line of the cylinder and are provided to encompass the crossbar of the frame, while an additional Velcro™ buckle disposed on the ground surface of the packing sack is provided to encompass the saddlebar, thereby hindering the mounted packing sack to slide along the crossbar.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects, aspects and advantages will be better understood from the following detailed description of a preferred embodiment of the invention with reference to the drawings, in which:

FIG. 1 is an elevation side view of a bicycle tent according to the invention;

FIG. 2 is a cross section of a tent according to FIG. 1;

FIG. 3 is a front view of a tent according to FIG. 1;

FIG. 4 is a rear view of a tent according to FIG. 1; and

FIG. 5 is a perspective view of the erected bicycle tent according to the invention.

#### DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

Referring now to the drawings, and more particularly to FIG. 1, there is shown a bicycle tent 10 according to the invention which comprises an awning 12 which provides roof surfaces and is connected to a ground sheet along an edge 16 of the upper awning facing the ground. The awning and the ground sheet are connected, e.g. by means of a seam which can be

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sealed in a waterproof manner by an additional adhesive strip or the like.

With reference now to both FIGS. 1 and 5, the upper awning 12 consists of different areas being defined by cut and seam arrangement. It is comprised of a triangle shaped area 18 bordered by three seams 20L, 20R and 22. The triangle area 18 essentially has the shape of an isosceles triangle. In the erected state of the tent, the two seams 20L and 20R form two crest lines, extending from an point at which the awning engages the saddle 24 of an mountain bike 26, as seen in FIG. 2, to the outermost ends of the handlebar 28 of the mountain bike 26. Seam 22 extends coincident with the handlebar 28 and forms at the same time the upper edge of a trapezoidal area 30, shown in FIGS. 3 and 5, forming an apse and being spanned over the front wheel 32 of the bicycle 32. A lower edge 34, the length of which is between 52 inches and 72 inches dependent on the embodiment of the sack formed of the upper awning and the ground sheet and furthermore depending on the height of the bicycle being used as a supporting rod arrangement, extends parallel to the upper edge 22. To the left and the right of the seam or edge 22 handling loops are arranged, by means of which the awning can be adjusted and aligned during set up procedure of the tent.

The trapezoidal area 30 furthermore features an entrance slit 36, which can be closed using a zipper or a Velcro™ type fastener.

Referring now to FIG. 4, there are shown two triangle shaped roof areas 38L and 38R being joined with the triangle shaped, reinforced area 18 as well with the trapezoidal area 30 forming an apse. The two roof areas 38L and 38R are linked via a triangle shaped rear roof area 40, the top of which lies about in the bearing area of the upper awning on the saddle 24. Spanning loops 42 are arranged along the seam 16 connecting the ground sheet 14 to the awning 12, by means of which the awning on the vertically standing bicycle can be spanned to tent pegs driven into the ground. Preferably, the spanning loops have the form of elastic rubber rings. Additionally, cords can be attached to the awning, e.g. a cord 46 can be fixed at the seat engaging point of the upper awning 12 on the saddle 24, and being spanned to a tent peg 44 driven into the soil.

The bicycle visible in the cross sectional view of the tent in FIG. 2 comprises a frame 48 having a crossbar 50 and a saddle supporting bar 52. The packed tent can be attached to the triangle formed at the joint of crossbar 50 and saddlebar 52 by means of a specially designed pack sack 54. The pack sack 52 has an essentially cylinder shaped form comprising two Velcro™ fastening band loops 56O being arranged in a surface line of the pack sack and encompassing the crossbar. An additional Velcro™ fastening loop 56S encompasses the saddlebar of the frame, thereby preventing the pack sack from sliding along the crossbar.

The design of a bicycle tent provides a light weight tent that can be set up in very short a time, needing no additional rod arrangement or poles, yet providing a spacious shelter for two persons and a bike in all weather.

While the invention has been described in terms of a single preferred embodiment, those skilled in the art will recognize that the invention can be practiced with modification within the spirit and scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

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1. A collapsible tent for providing shelter which uses a bicycle as a support member, the bicycle comprising a seat and handlebars, the seat and handlebars providing support means for the collapsible tent, the tent comprising:

- a flexible sack comprising a ground sheet and an awning sheet joined together at a peripheral edge, said awning sheet having a slit near said peripheral edge forming an opening for said sack, said flexible sack forming a tent when a bicycle is inserted through said opening of said sack and positioned over said ground sheet and under said awning sheet such that the bicycle acts as a central support for lifting said awning sheet away from said ground sheet to form a roof for said tent; and
- a plurality of spanning loops connected about said peripheral edge of said sack wherein said spanning

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loops anchor said ground sheet of said sack to the ground to form a floor for said tent.

2. A collapsible tent as recited in claim 1 wherein said roof comprises a triangle shaped top portion formed by said awning sheet contacting the bicycle at a left handlebar, at a right handlebar, and at a bicycle seat.

3. A collapsible tent as recited in claim 1 wherein said slit in said sack is closable by means of a zipper.

4. A collapsible tent as recited in claim 1 wherein said slit in said sack is closable by means of a fastener comprising a first flexible material having a plurality of hooks engaging to a second flexible material having a plurality of loops.

5. A collapsible tent as recited in claim 1 wherein said awning sheet is made from silicon coated polyester fabric.

6. A collapsible tent as recited in claim 1 wherein said ground sheet is made from silicon coated polyester fabric.

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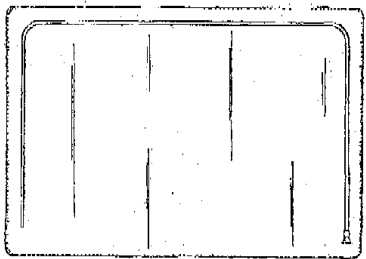
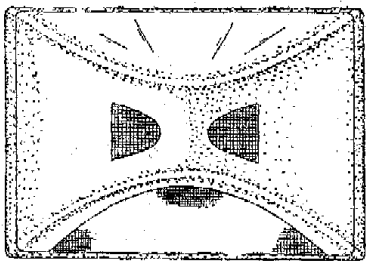
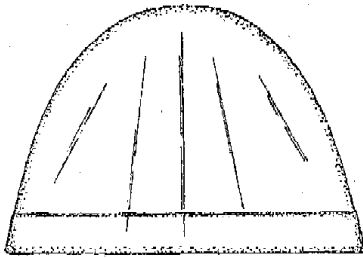
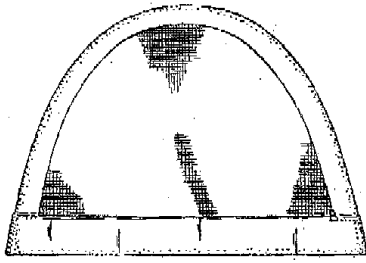
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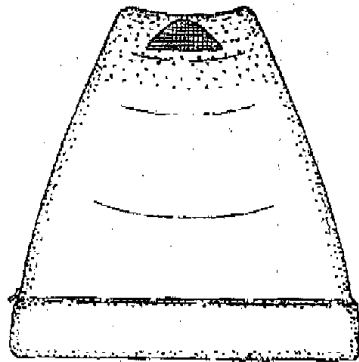
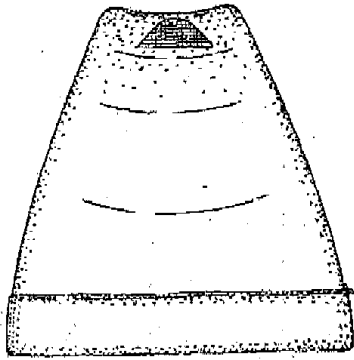
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## Design

(19) Registration office code	FR
Design number	992588-0001
(21) Application number	992588
(25) Application language code	fr
Second language code	
(22) Application date	21-04-1999
(43)/(44) Application published	
Application reference	
(11) Registration number	992588
(15) Registration date	21-04-1999
Publication date	17-09-1999
Design description	<p>Reproduction 1.1 : Tente transportable pour enfant destinée aux activités de plein air. Vue avant.</p> <p>Reproduction 1.2 : Tente transportable pour enfant destinée aux activités de plein air. Vue arrière.</p> <p>Reproduction 1.3 : Tente transportable pour enfant destinée aux activités de plein air. Vue de dessus.</p> <p>Reproduction 1.4 : Tente transportable pour enfant destinée aux activités de plein air. Vue de dessous.</p> <p>Reproduction 1.5 : Tente transportable pour enfant destinée aux activités de plein air. Vue du côté gauche.</p> <p>Reproduction 1.6 : Tente transportable pour enfant destinée aux activités de plein air. Vue du côté droit.</p>
(46) End of deferment	
(18) Expiry date	21-04-2024
Effective date	21-04-1999
Design current status code	Registered and fully published
Design current status date	
Comment	
(82) Statements contained in the application	

## (55) Representation (views of design)





## Indication of the product and classification

### Language code

fr

-

### (54) Indication product

Tente transportable pour enfant destinée aux activités de plein air

-

### (51) Locarno classification

21.04

### (71)/(73)/(78) Owner

Applicant Identifier

FR0000992588-01

Name

EVENFLO COMPANY, Inc, Société constituée selon les lois de l'état du Delaware

Country code

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Representative identifier

FR0000992588-01

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### (72) Designer

No entry for the design number FR700000000992588-0001

**(750) Correspondence address**

No entry for the design number FR700000000992588-0001

**(23) Exhibition priority**

No entry for the design number FR700000000992588-0001

**(30) Priority**

<b>(33) Priority country</b>	<b>(31) Priority number</b>	<b>(32) Priority date</b>
US	29/095,503	23-10-1998

**Publication**

<b>Publication identifier</b>	<b>Publication section</b>	<b>Publication date</b>
1999-19	Registrations Fully Published	17-09-1999

**Records**

No entry for the design number FR700000000992588-0001

**Renewals**

No entry for the design number FR700000000992588-0001



(12) **United States Design Patent**  
**Ragatz**(10) Patent No.: **US D468,793 S**  
(45) Date of Patent: **\*\* Jan. 14, 2003**(54) **VEHICLE SIMULATIVE CHILD TENT**(75) Inventor: **Jeffrey C. Ragatz**, Middleton, WI (US)(73) Assignee: **Capital Concepts, LLC**, Middleton, WI (US)(\*\*) Term: **14 Years**(21) Appl. No.: **29/154,083**(22) Filed: **Jan. 15, 2002**(51) **LOC (7) Cl.** ..... **21-04**(52) **U.S. Cl.** ..... **D21/836; D21/838; D21/834**(58) **Field of Search** ..... D21/834-838;  
D6/597; D12/401-405; 135/121, 124-128,  
143, 900-902(56) **References Cited****U.S. PATENT DOCUMENTS**

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(List continued on next page.)

*Primary Examiner*—Raphael Barkai(74) *Attorney, Agent, or Firm*—Lathrop & Clark LLP(57) **CLAIM**

The ornamental design for a vehicle simulative child tent, as shown and described.

**DESCRIPTION**

FIG. 1 is a front isometric view of the vehicle simulative child tent of this invention;

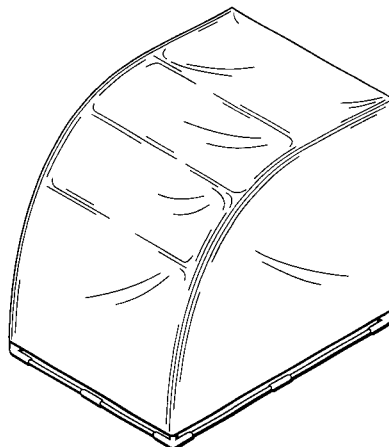
FIG. 2 is a front elevational view thereof;

FIG. 3 is a rear elevational view thereof;

FIG. 4 is a right side view thereof, the side opposite being a mirror image thereof;

FIG. 5 is a top plan view thereof; and,

FIG. 6 is a bottom plan view thereof.

**1 Claim, 1 Drawing Sheet**

**US D468,793 S**

Page 2

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Playhut ® Train N Ball Zone/30 Balls, <<http://www.playhut.com/products/Item.asp?Item=53762-71830>> © 2000 Playhut, Inc., 368 South Cheryl Lane, City of Industry, CA.  
Playhut ® Truck and Ball Zone—100 Ball, <<http://www.playhut.com/products/Item.asp?Item=53762-42033>> © 2000 Playhut, Inc., 368 South Cheryl Lane, City of Industry, CA.

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Playhut ® Sneaker Clubhouse, <<http://www.playhut.com/products/Item.asp?Item=53762-71458>> © 2000 Playhut, Inc., 368 South Cheryl Lane, City of Industry, CA.

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FIG. 1

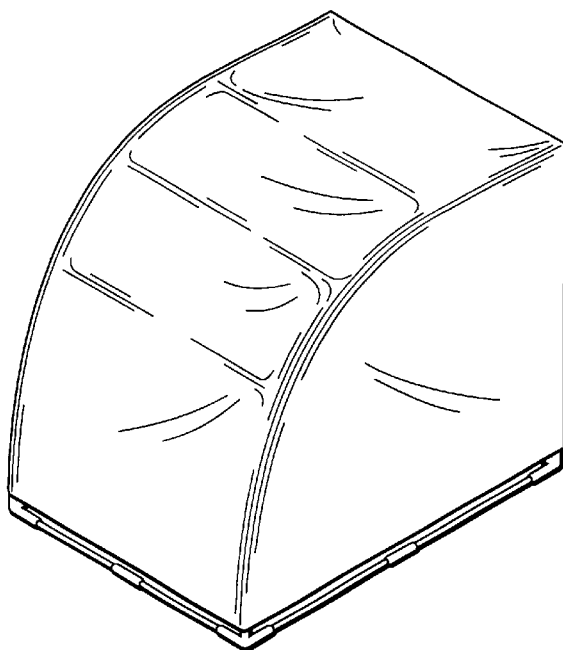


FIG. 2

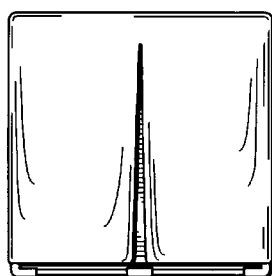


FIG. 3

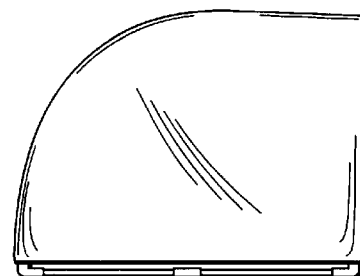


FIG. 4

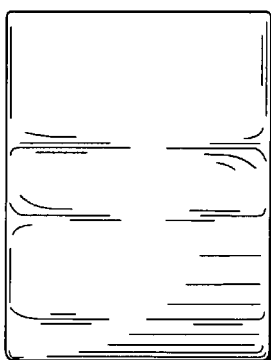


FIG. 5

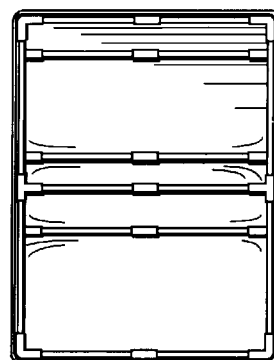


FIG. 6

## 24. q.

### Design

(19) Registration office code	CN
Design number	201230271510.4
(21) Application number	201230271510.4
(25) Application language code	zh
Second language code	
(22) Application date	17-06-2012
(43)/(44) Application published	
Application reference	
(11) Registration number	302221657
(15) Registration date	05-12-2012
Publication date	05-12-2012
Design description	1.#####(###X2-B)#2.##### #####3.#####4.##### #####5.#####
(46) End of deferment	
(18) Expiry date	
Effective date	05-12-2012
Design current status code	Registered and fully published
Design current status date	05-12-2012
Comment	
(82) Statements contained in the application	

### (55) Representation (views of design)





## Indication of the product and classification

Language code	(54) Indication product
zh	##(#####X2-B)
en	Tent (XINYE Outdoors X2-B)
-	-
(51) Locarno classification	21.04

## (71)/(73)/(78) Owner

Name	#####
Applicant nationality code	CN
Address	311200 #####106#

## (74) Representative

No entry for the design number CN702012030271510-0001

## (72) Designer

Designer identifier	Designer name
	###

## (750) Correspondence address

No entry for the design number CN702012030271510-0001

<sup>(23)</sup> **Exhibition priority**

No entry for the design number CN702012030271510-0001

<sup>(30)</sup> **Priority**

No entry for the design number CN702012030271510-0001

**Publication**

Publication identifier	Publication section	Publication date
302221657	Registration	05-12-2012

**Recordals**

No entry for the design number CN702012030271510-0001

**Renewals**

No entry for the design number CN702012030271510-0001



## **EXHIBIT F**

PTO/SB/01A (01-09)

Approved for use through 01/31/2014 OMB 0651-0032

U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

<b>Title of Invention</b>	<b>STORAGE UNIT</b>
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As the below named inventor(s), I/we declare that

This declaration is directed to: ☒ The attached application, or  
☐ United States application or PCT international application number \_\_\_\_\_  
filed on \_\_\_\_\_  
☐ As amended on \_\_\_\_\_ (if applicable).

I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought:

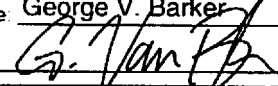
I/we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above.

I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application

**WARNING:**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

All statements made herein of my/our own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

<b>FULL NAME OF INVENTOR(S)</b>	
Inventor one: <u>George V. Barker</u>	Date: <u>05/25/2012</u>
Signature: 	Citizen of: <u>United States</u>
Inventor two: _____	Date: _____
Signature: _____	Citizen of: _____

☐ Additional inventors or a legal representative are being named on \_\_\_\_\_ additional form(s) attached hereto.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2

## **EXHIBIT G**

US00D661513S

(12) **United States Design Patent**  
**Barker et al.**

(10) **Patent No.:** **US D661,513 S**

(45) **Date of Patent:** **\*\* Jun. 12, 2012**

(54) **STORAGE UNIT**

(76) Inventors: **George V. Barker**, San Diego, CA (US);  
**Scott R. Gant**, Poway, CA (US)

(\*\*) Term: **14 Years**

(21) Appl. No.: **29/376,216**

(22) Filed: **Oct. 4, 2010**

(51) **LOC (9) Cl.** ..... **06-04**

(52) **U.S. Cl.** ..... **D6/441**

(58) **Field of Classification Search** ..... D6/432,  
D6/433, 436, 440, 441, 442, 445, 472; 312/108,  
312/183, 199, 204, 283, 297, 329  
See application file for complete search history.

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\* cited by examiner

*Primary Examiner* — Mimosa De

(74) *Attorney, Agent, or Firm* — S McPherson IP Law

(57) **CLAIM**

The ornamental design for a storage unit, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective view of a storage unit showing our new design;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a rear elevational view thereof;

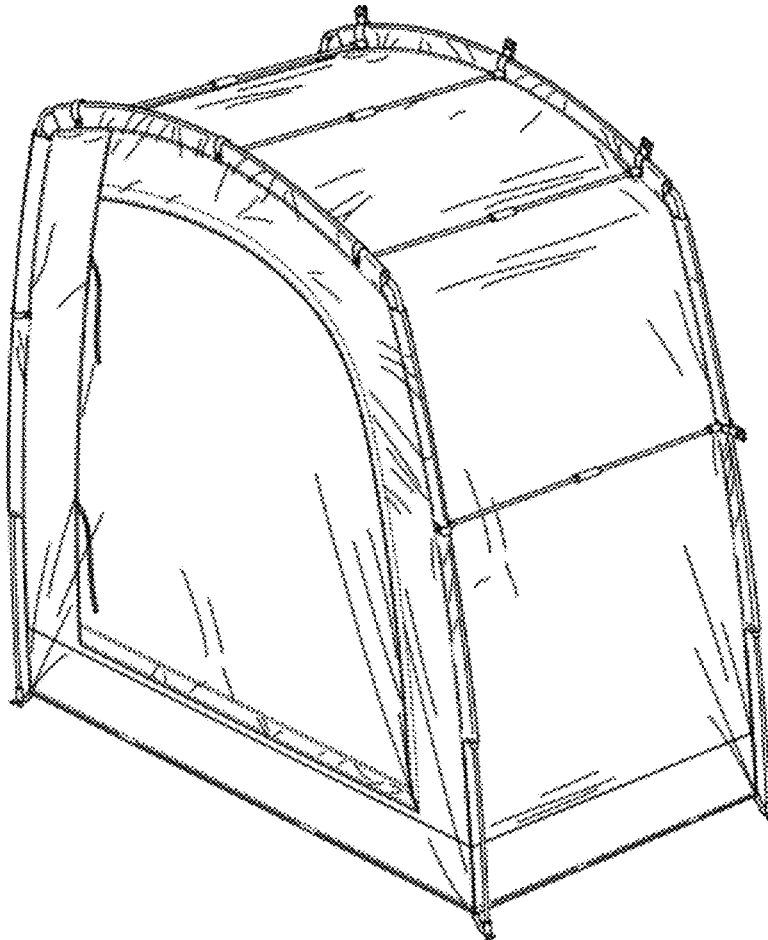
FIG. 4 is a right side elevational view thereof;

FIG. 5 is a left side elevational view thereof;

FIG. 6 is a top plan view thereof; and,

FIG. 7 is a bottom plan view, thereof.

**1 Claim, 7 Drawing Sheets**

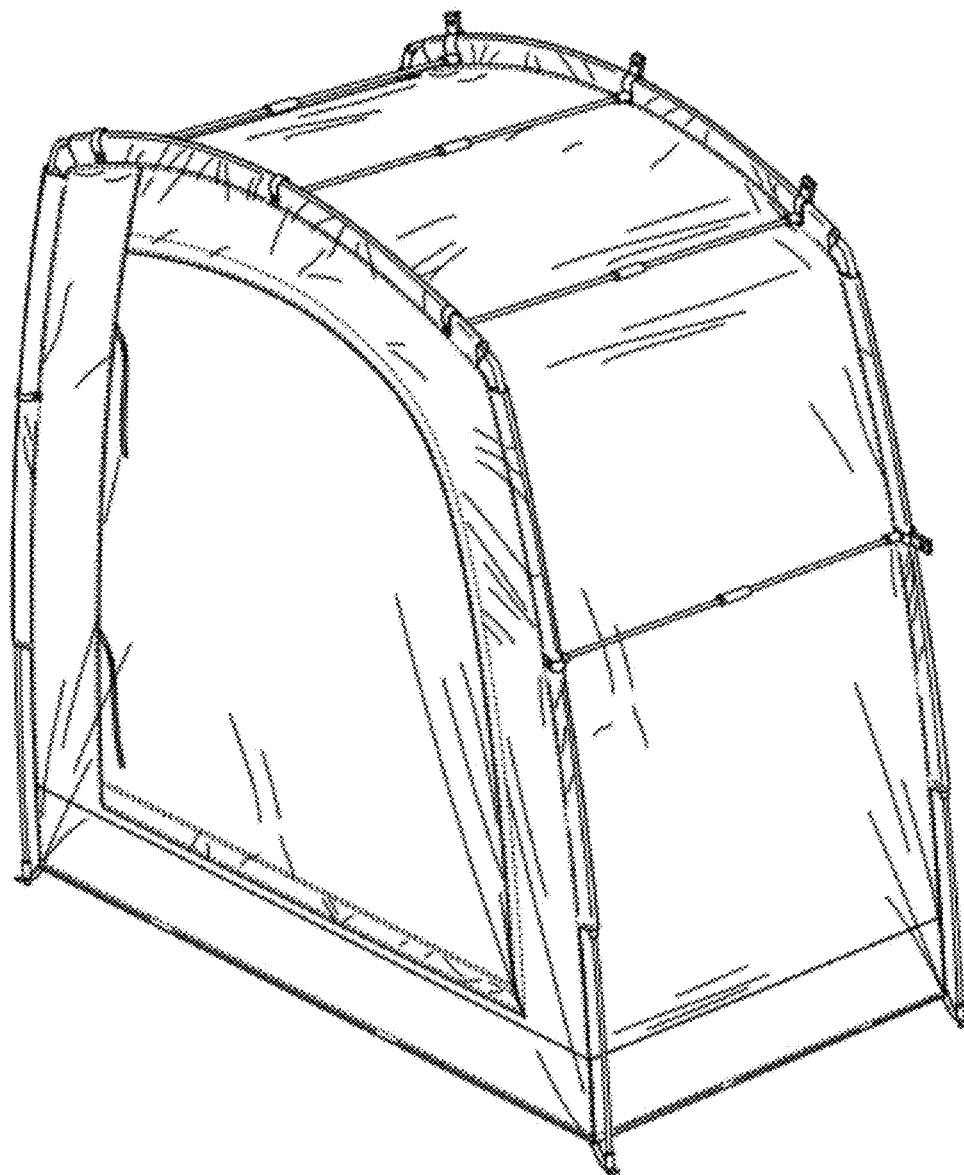


**U.S. Patent**

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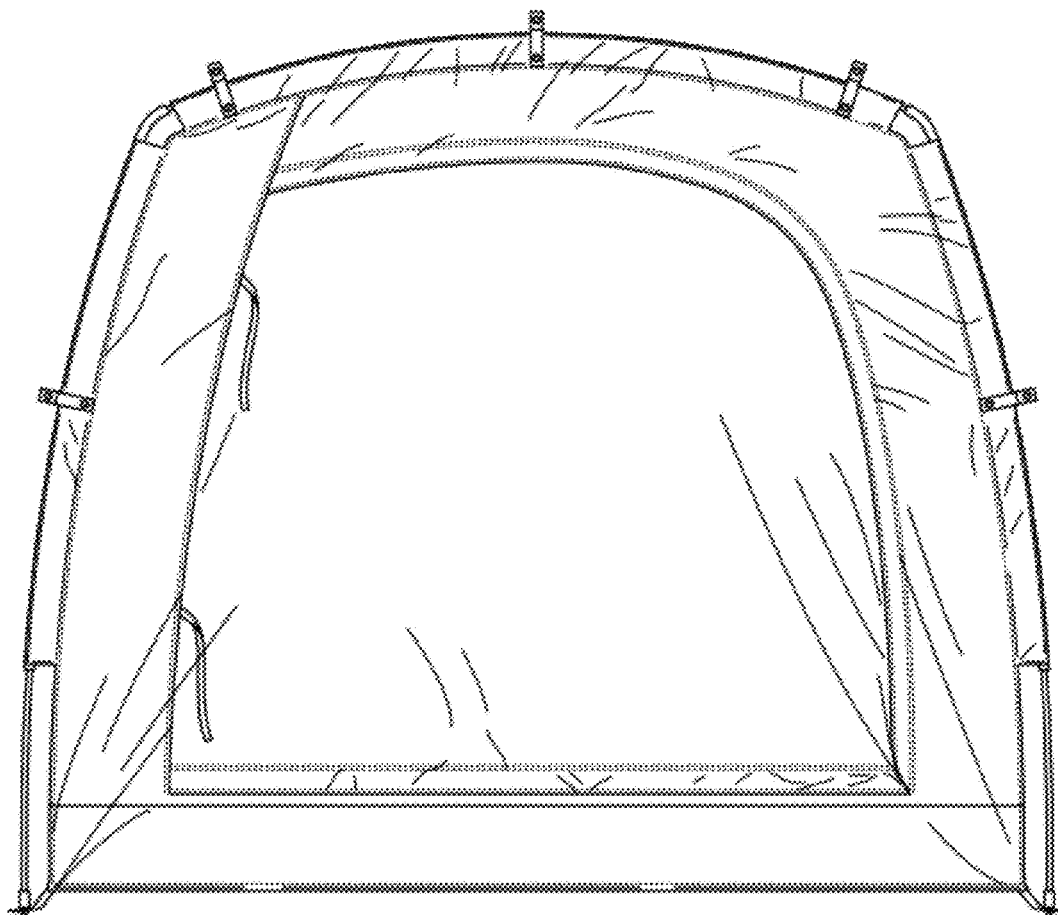
**FIG. 1**

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**FIG. 2**

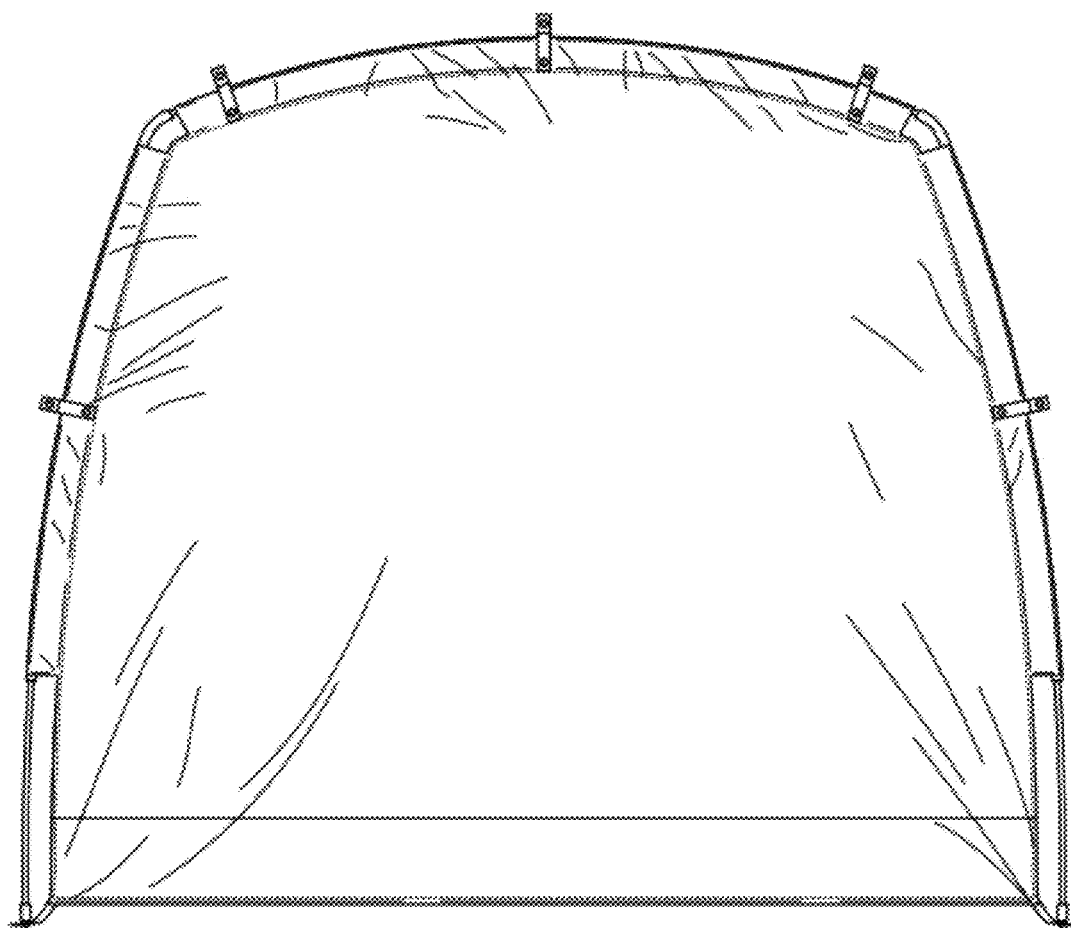


**U.S. Patent**

**Jun. 12, 2012**

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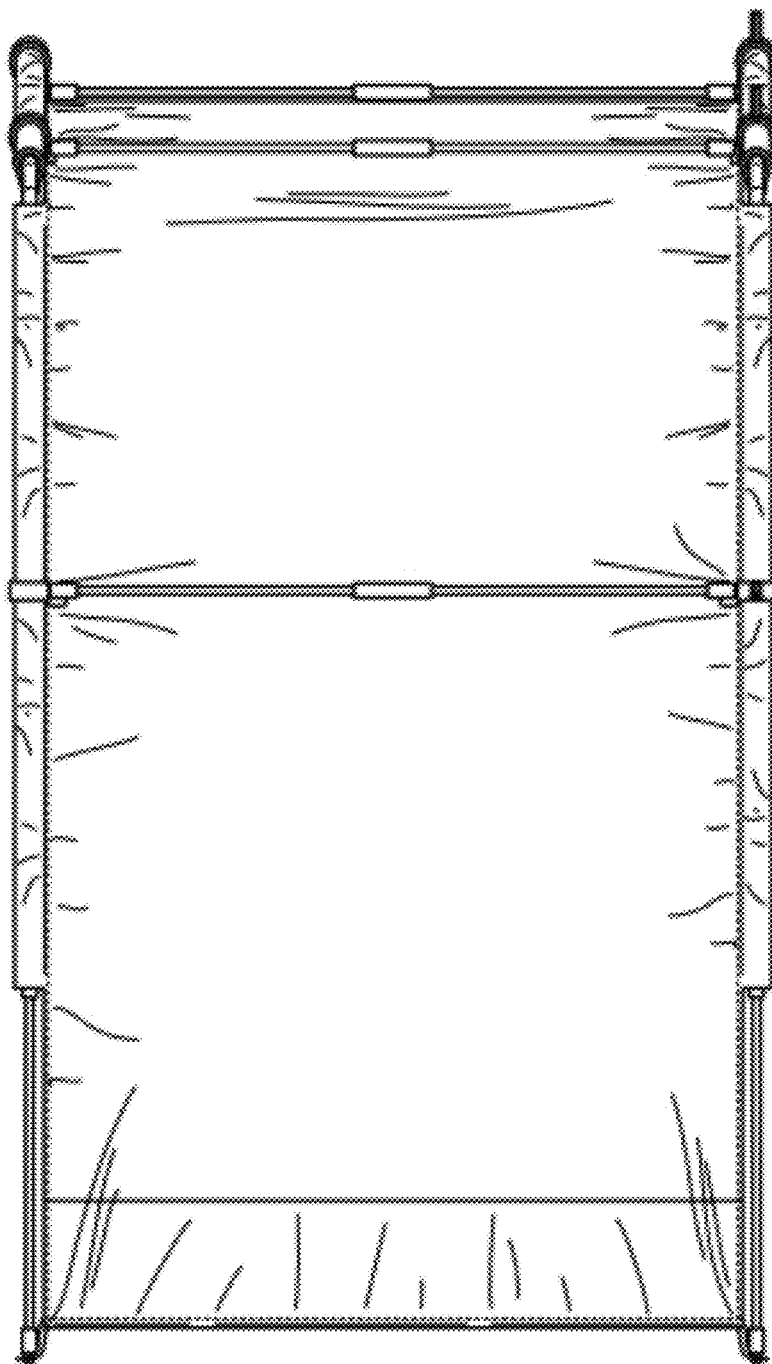
**FIG. 3**

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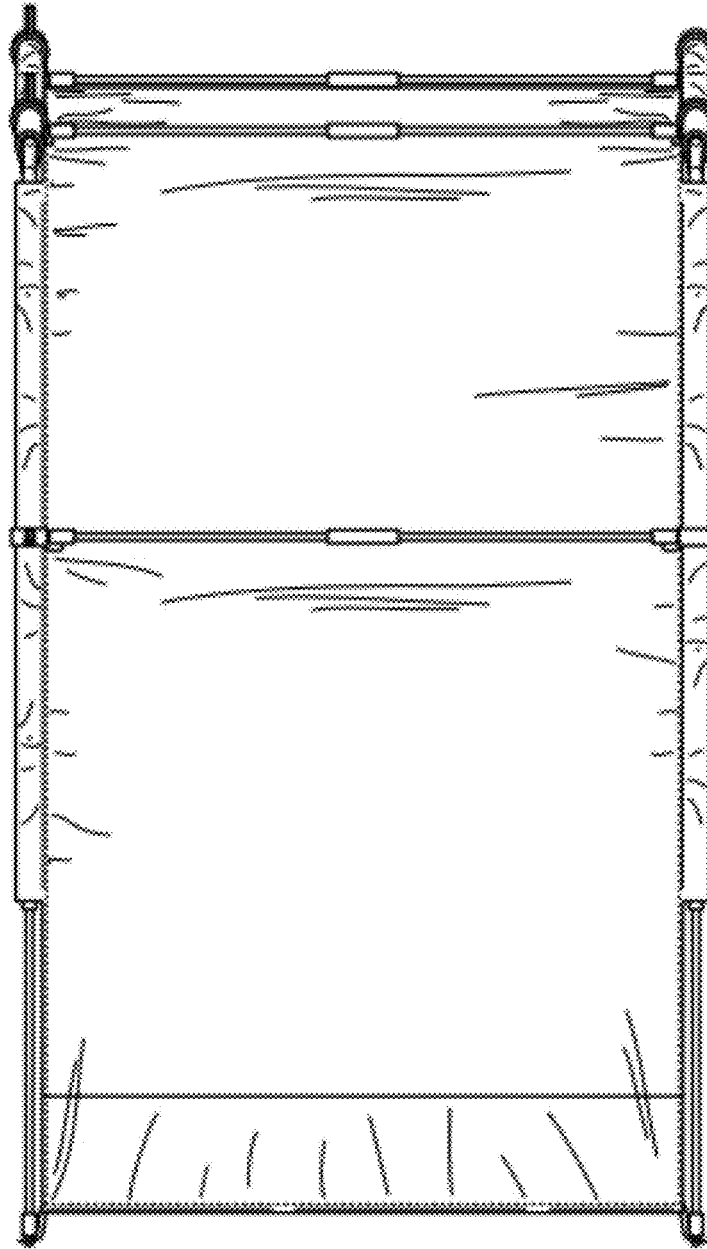
**FIG. 4**

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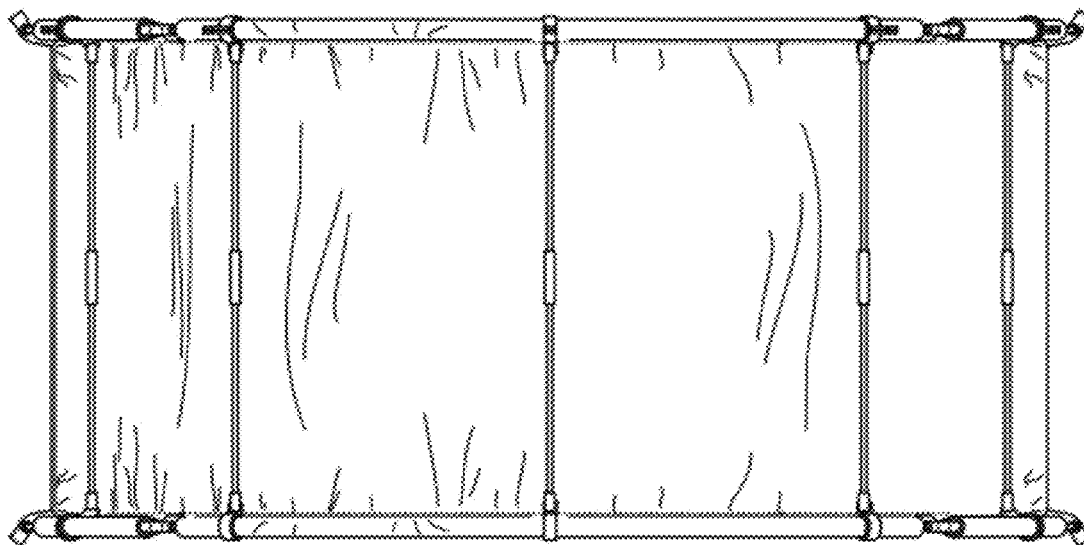
**FIG. 5**

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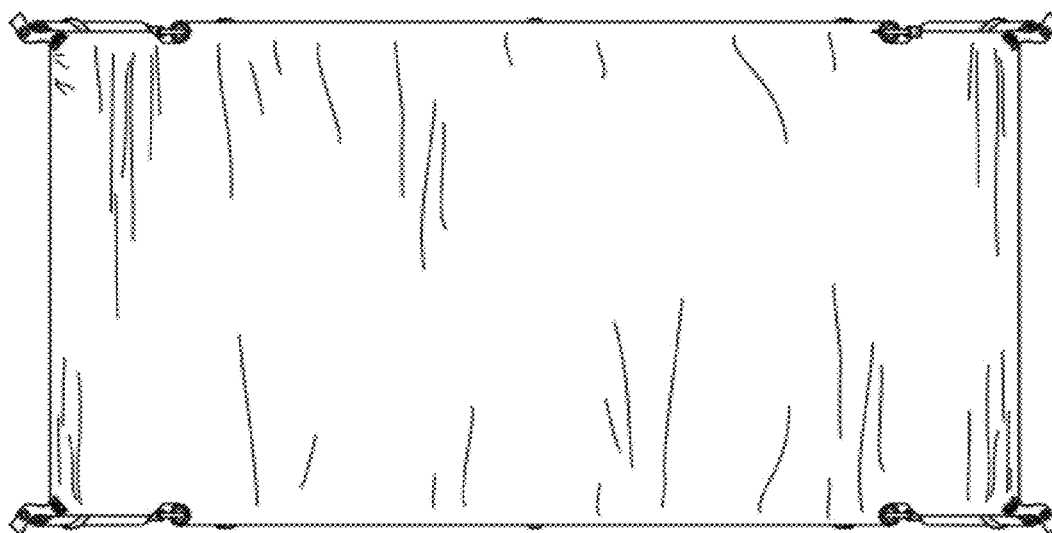
**FIG. 6**

**U.S. Patent**

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**FIG. 7**